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A JOURNAL
 DEVOTED
 TO BEES,
 AND HONEY,
 AND HOME
 INTERESTS.

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"A SUBSCRIBER," page 26, says, "comb honey should be judged by appearance only. Flavor I would not consider at all." Oh, my! my! my! isn't taste the chief consideration when folks buy things to eat? He also says, "Most people prefer honey in the crystallized or granulated condition." Perhaps in New Zealand, but not on this side, my good friend.

"SOME EXPERTS" are asked their opinions of plain sections in *American Bee Journal*. Ten have never tried them, two of the ten being favorably inclined; six who have tried them have no preference for them; five prefer them. Secor likes them in supers but not in shipping-case. Stachelhausen likes them, but finds some talking necessary to get his customers to accept them. [A few years ago the testimony was decidedly against spaced frames of any sort; but at the present rate it will not be long, I think, before the great majority will prefer some one of the various forms. Plain sections will run the same gauntlet, and I believe they will come out the victor in the end.—ED.]

A SUNNY DAY, with thermometer at 44, came Dec. 31, although a little windy, and I carried one colony out of cellar. The bees didn't seem to care to fly, although it went to 45 degrees in the afternoon. I think not more than two or three bees at any time flew at the same time. On the same kind of a day in April I should have expected to see the entire population outside. But after 44 days' confinement they didn't need any flight. [As you know, I do not attach very much importance to bees having a flight very early in winter. As you say, March and April would show a decided difference; but a temperature of 45 is a little too low to get much flying. In order that our bees

may get the best cleansing we prefer a day when it is 65 to 70 at noon, with the sun shining. With a temperature of only 45 the bees may fly long enough to get chilled and not get back. They are confused as to their entrances somewhat, and it takes time for them to get back.—ED.]

A FRIEND in Cuba sent me by mail a beehat that I wore all summer with great satisfaction. It is made of tough palmleaf, so tough that it came done up in a solid wad without a single strand being broken; but it had scarcely any semblance of a hat till after much coaxing it was got into shape. Comfortable, durable, cheap—it would be a good thing if they were thrown on the market. [We are all curiosity to know the shape and character of that hat. Say, we have not seen a picture of you very lately. Suppose you go to your local artist in Marengo and have him "take" you with that hat on, toggled out in your regular bee-suit. We will pay the bill. I know our readers would like to see your smiling face, even if they can see only a little of it under that hat.—ED.]

TESTIMONY as to the efficacy of bee-stings in rheumatism is conflicting. Possibly it would be less so if the treatment were always as thorough as that practiced by the German physician, Dr. Terc, whose experience includes a series of years. As far back as 1888, as reported in *Deutsche Imker*, he had treated 173 persons, using about 39,000 stings, an average of 225 stings to each patient! One patient alone received 5600 stings. Beginning with two or three stings a day, the number reached 20, 25, and even 50 a day. In all he has treated some 500 cases, the treatment continuing one, two, and even three years. According to that, one should not expect a cure from an occasional sting at irregular intervals. [While the testimony in our American journals may be somewhat conflicting, yet it shows such a strong leaning toward the value of the remedy that I may think we may safely conclude, in many cases at least, that bee-poison, when properly administered, does bring about certain and positive relief. For further particulars see Pickings, p. 740, 1904.—ED.]

WM. A. STEWART, p. 27, quotes Doolittle as favoring combs solid full of brood, and says, "I do not want the brood-combs *quite* in that shape"—wants room for a little honey and pollen. Don't worry, friend Stewart; you're not likely ever to have a brood-chamber so filled with brood that not a cell is left for honey or pollen. You've seen "a room full of people," haven't you? Well, that doesn't mean that the room is entirely full, the people being piled up on top of one another clear up to the ceiling, nor even that they're packed so closely together that there isn't room to move. So in the ordinary language of bee-keepers a hive with brood-combs filled solid full of brood is never meant as having every cell in the hive filled with brood; especially as such a thing never happened and probably never will.

WHEN BEES are taken out of cellar, unless smoked they fly out and sting on their way to their stands, says G. M. Doolittle, p. 15. When my bees are carried out, smoke is always on hand, ready to be used if needed; but generally no smoke is used, and not a bee comes out of a hive until some time after it is placed on its stand. Perhaps one reason for the difference is that the cellar is thoroughly aired all night before taking out. Very likely another difference is that he uses a wheelbarrow and mine are carried. Possibly it might be better to use the wheelbarrow and more smoke. [We always carry our bees instead of wheeling them. One man on each side makes the burden easy, and the actual time consumed in moving a hundred colonies from a cellar is very small comparatively. A wheelbarrow with a pneumatic rubber tire and nice easy springs might enable *one* man to move the bees in and out as easily as *two* men could carry them.—ED.]

THE DOOLITTLE PLAN of queen-rearing has not fulfilled the expectations that were awakened with regard to it, especially by the endorsement of certain German theorists. Even American bee-keepers are allowing it to sink into "innocuous desuetude," concluding that for queens of good quality nothing can equal those obtained from after-swarms. Such, in substance, is an item going the rounds of the German bee journals. Our good friends in the "Vaterland" may be assured that some one has had the floor who is little familiar with American bee-keeping. The Doolittle plan, under whatever name or with whatever variation, is more popular to-day than ever before. For every queen reared from an after-swarm by queen-breeders, there are probably fifty reared from Doolittle cell-cups; and, moreover, there is no lowering of the standard as to quality. [Yes, indeed. All the modern systems of queen-rearing, unless it be that of Mr. Alley, are based on the principles laid down by Mr. Doolittle in his book some years ago. The Doolittle system is very much alive, only it has been modified and probably improved by Pratt, Laws, Pridgen, Phillips, Wardell, Quirin, and others.—ED.]

MR. EDITOR, I beg your pardon. If I had looked up, as I ought to have done, just what Mr. Marks said in Mr. France's report, I would have understood you better on p. 1149. If I knew nothing of Mr. Marks' views except from a hasty reading of what he there said, the likelihood is that I would think just as you, that he considered the fight against adulteration of less importance than furnishing funds to quarrelsome bee-keepers to help them out in their lawsuits. I have good reason, however, to know that he favors cutting in two the expense of litigation; and I am sure, if all is done that he suggests in the way of fighting adulteration, that matter will not be neglected. I am not authorized to interpret Mr. Marks' words for him, but if you will take the words "prime" and "secondary" in the parts you have quoted, page 1149, as referring to time, it will give quite a different meaning. The "prime" object of national organization had reference to litigation. Indeed, it was the only object for some time. The work in that direction has been so well done that it may now be allowed to sink into the background, and a matter "secondary" in point of time come to the front and receive more attention and more money. [I do not know *how* I knew, but I knew that Mr. Marks himself was in favor of giving more attention to adulteration and less to bee litigation. My purpose in referring to the matter, however, was only to influence the membership and the Board in a way that would put the insurance feature, as Mr. France puts it, in the background, and the fighting of adulteration in the foreground; for the Board must have the backing of the membership before it can feel that it can proceed along any line.—ED.]

THE LAW against adulteration can hardly be too severe; but it will be a cold day for bee-keepers if it is ever decided that honey-dew can not come under the head of honey commercially. It would shut most of us out of the market. My location is exceptionally free from honey-dew, but I never could sell a pound of honey if I had to swear it didn't contain a drop of honey-dew. "What! put honey-dew on a level with the best grade of honey?" Not a bit of it. But it is on a level, and above the level of some samples of honey, and should be sold on its merits, but not as adulterated. [The correspondence in our office shows there is a sentiment decidedly against having the chemists declare that honey-dew in honey is a foreign ingredient. I can not imagine any severer blow that could be administered to the bee-keeping industry than to have our chemists adopt a definition that would bar out honey-dew from honey. I have written several of our chemists, and hope our subscribers will flood their local chemists with letters offering their protests. Prof. H. W. Wiley, I am sure, is desirous of serving bee-keepers, and I suggest that our subscribers write respectful letters to him explaining how it would drive them out of the business if such a definition as was proposed should be adopted

by the Department. Write to Prof. H. W. Wiley, Department of Agriculture, Washington, D. C., W. A. Selser, 10 Vine Street, Philadelphia, and Prof. E. N. Eaton, Chicago, Ills., or to any other chemist who may be connected with a pure-food department. If honey-dew were barred out, any of us might be subject to a fine and possible imprisonment for selling adulterated honey. Such a condition of affairs would drive two-thirds of the bee-keepers out of the business. There ought to be at least 20,000 letters sent in to the chemists to let them know the sentiment of the bee-keeping fraternity of the United States. Write any way, whether you have honey-dew in your locality or not. You do not know *when* your bees may gather some of the stuff, and *you* be made the victim of the law.—ED.]

REPLYING to your footnote, p. 1143, Mr. Editor, I was talking about wintering on p. 1055, but you asked a general question on the next page about the difference between honey and sugar syrup, and you will see that I answered it as such without reference to wintering, page 1099, where you will see that neither of us made any reference to wintering, although you were probably thinking of it and I was not. But let's get back to the original question, which is really a very important one, "Is good honey better than sugar syrup for wintering?" I'm frank to say I don't know. The testimony of Editor Reidenbach, page 1012, is pretty strong that the two colonies suffered from having sugar only. I'm sorry to say I don't remember how many other colonies there were, but my impression is that the number was considerable. But it is possible that there was some other trouble with those two particular colonies, leaving the question still open. Mr. Hutchinson, yourself, and others, testify that bees have wintered just as well on sugar as on honey. But do you know that the bees of any particular colony would not have been just a little more vigorous if they had had honey instead of sugar? A man who takes his daily dram of whisky lives to good old age with never a day of sickness; but does that prove that he would not have been better off with water in place of whisky? A colony comes out strong on sugar; but does that prove it would not have been better off with honey in place of sugar? Honey contains elements for building up tissue that are not contained in sugar, but is there enough wear and tear of tissue in winter to make the difference count? Can we have any positive testimony either way? [Of late years we have paid but very little attention to the question of winter food for bees, except that the honey in all cases should be at least a good table honey well ripened. We have wintered for years with a good grade of clover or basswood, and used this food right alongside of pure sugar syrup sealed in the combs. We have never had any choice. So far as we could see, one way was as good as the other. Very possibly if we had conducted the experiments along scientific lines, weighing

and measuring, and noting exactly the conditions of the colonies in the spring, we might have seen a difference; but the difference, if any, was not sufficiently noticeable to call our attention to the matter.—ED.]



An interesting article on the uses of honey as practiced by the Arabs appears in *L'Abeille*, published in Algiers. The Arabs think the best honey in the world comes from Sicily. "It is the most perfect in point of taste, and its perfume is exquisite. No other honey is more savory, more richly colored, more unctuous to the tongue. It granulates rapidly, but is dissolved by the use of a very moderate amount of heat. It is so thick that, by dipping the finger in it, it will form a thread of honey reaching to the ground, without breaking." In fact, that is the test among the Arabs as to whether honey is ripe enough to eat.

A Cleveland daily announces as something wonderful that a man now living in Canada is going to establish a bee-farm in Texas of 480 acres. Even if bees could be confined by fences that would not be a very large bee-range. Then the man is going to do what was never attempted before. He is going to import his queens from Italy! They will be so valuable as to be worth their weight in gold—that is, about 20 cents apiece if we take that statement literally. We are further informed that good queens from Italy range in price from \$50 to \$100. What a fine story was spoiled by the ignorance of that writer, when the truth would have served him much better! The whole matter was explained to the editor, but such trifling deviations from the truth do not seem to disturb him in the least.

What would the world do for sugar if the present supply from cane and beets were cut off? Yet we do not have to go far back in history to find that these two sources of sugar were of no use to mankind for that purpose. The extent to which honey took its place is seen from the following extract from "Joyce's Child's History of Ireland," quoted in the *Irish Bee Journal*:

HONEY IN ANCIENT ERIN.

There was no sugar, and honey was greatly valued; bee-hives were kept everywhere; and the management of bees was considered such an important industry that a special section of the Brehon Laws is devoted to it. The people used honey in a great many different ways. They basted roasted meat with it; it was used with salmon while cooking, and as a seasoning with all sorts of dishes. Often at meals each person had a little dish sometimes of silver, filled with honey, beside his plate

and each morsel, whether meat, fish, or bread, was dipped into it before being conveyed to the mouth. The people often mixed honey with milk, either sweet or sour, for drinking. From honey also was made a kind of liquor called mead, very sweet and slightly intoxicating. This was considered a delicacy; and a visitor was often treated to a drink of mead immediately on arrival. As bees were so abundant, beeswax, as might be expected, was turned to account for lighting purposes. In some of our old records we find wax candles mentioned as being used in the houses of the richer classes (in Dinnree for instance) long before the fifth century.



The general tenor of the European bee journals, especially French and German, at the close of the old year indicates much interest in all lines of apicultural progress. Great conventions are planned for the entire year; important experiments are being tried in bee manipulation and in curing bee diseases; new plans for disposing of honey crops are being warmly discussed; and as the years go by there is evident in Europe what might be called an Americanized way of doing things so far as bees are concerned. While the old straw skep holds its own fairly well in some places, especially in countries as cold as Germany, the square box is becoming more and more a familiar feature in pictures of German apiaries. The rapid intercommunication among nations to-day is causing them to be more and more alike. It would be quite impossible to judge from a photograph nowadays whether it represents a convention of German, French, Dutch, English, Irish, or American beekeepers so far as clothing is concerned, as there is nothing characteristic about any of them so far as national garb is concerned. This leveling-down process indicates progress among all ranks, and is causing the thrones of kings to stand no higher than the rocking-chair of the peasant.



INTRODUCTION.

By way of introduction I wish to say that, after some correspondence and a recent conference with the editor of GLEANINGS, arrangements have been made whereby the Southwest, that great portion of country of the United States so well known for its extensive bee-keeping and honey-production, will be favored with a department in this journal, and the writer will, for a time at least, fill the place of the editorial writer of this department.

The bee-keepers of the great Southwest ought to be glad of this favor of GLEANINGS, and I hope that they will appreciate it, as they surely will, and that they will all join in making this new department of much interest and value.

It shall be my endeavor to give to the readers items of interest as adapted more particularly to the Southwest, although occasionally other matters of interest to the readers, not strictly pertaining to bee-keeping in the southwestern territory, will be dwelt upon. But to make this department a creditable one I shall have to ask for the hearty co-operation of the bee-keepers. Write me about your experiences, or on any subject that may be of interest to the bee-keeping fraternity; and by boiling down such matter it can be used and imparted to others. Thus you will not only be benefiting others by giving your experience, but yourself by getting the experience of others in return.



Some of my bee-keeping friends may want to know where I have been located for the past several months, judging from the many letters to that effect, as some had written that it had been rather hard for them to keep track of me; therefore I thought a few words of explanation would not be out of the way here, especially since I want to hear from these friends occasionally since this department has been started.

Since the first of October I have been here in Columbus, Ohio, attending the Ohio State University as a special student in zoology, entomology, and botany, which are all related to bee-keeping. After March the readers will find me at my old place in the South, with the Agricultural and Mechanical College, at College Station, Texas, where the work in the department of entomology and the experiment apiary will be resumed. My address now is No. 76 West Frambes Ave., Columbus, Ohio, where I shall be glad to have you send your correspondence.



A question of great importance that should be kept before every bee-keeper is, "Have you ordered your necessary bee-supplies for the coming season? and will you be prepared for the honey-flow when it does come? Although many have had occasion to learn that it is good policy to prepare every thing ahead of time, yet there are many who will forget or neglect the matter, only to be caught again by a heavy honey-flow, but without supers for the bees to store it in.

Now is the time to get your hives, supers, foundation, and other supplies; and during these wintry days every thing should be made ready for next season's work. Therefore I ask again, "Have you ordered your supplies? and will you be ready for the honey-flow when it comes?"



It is gratifying to note the sentiment of the members of the National Bee-keepers' Association in favor of meeting in San Antonio, Texas, next time, and I am glad indeed that such is the case. Of course, it remains for the Executive Committee of the Association to decide upon the place; but I think it is safe to say that all the bee-keep-

ers who can possibly do so may begin to prepare for a trip to Texas this fall, during the meeting of the National. The sooner you begin the better, and the more likely it will be that you will be there.

We have heard a great deal about the carload of bee-keepers who went to the Los Angeles meeting; but suppose there should be *two* carloads going to Texas. It seems reasonable enough. No matter how many or how few may come, however, the Texans will show you a good time, and preparations are already being made for the occasion.

The time of the meeting will most likely be in October, and during the time of the International Fair. This would be the most suitable time for several reasons, chief among them being that our weather turns a little cooler then, which, I presume, would be much appreciated by such great big fat fellows as our friends Dr. C. C. Miller, Hershisser, Root, York, Abbott, and Niver.

Come, for you are invited.

THE V EDGE ON HOFFMAN FRAMES.

This subject has received much attention in the bee journals of late, and both sides of the question have been brought forward. In spite of all this, who can decide which is the better? If we should judge by the many reports in favor of the square edges on the end-bars of Hoffman frames, we might draw our own conclusions in their favor, and pronounce the V edge as unnecessary and only an extra expense. But why are others in favor of the V-edge end-bars instead of the square ones? They have their reasons.

In my opinion, locality and conditions have a great deal to do with it. There was a time when I had only my home yard of about 65 colonies on both styles of frames, with square edge, and with V-edge end-bars, and after having tried them side by side for about six years I could not see any advantage in having the V edge on the frames.

Even in 1901, when the editor of GLEANINGS visited me, and we went through several colonies in the apiary, this matter was discussed, and I held the same opinion. In fact, I showed Mr. Root that there was no use for the V edge, a fact that seemed to be plain when the proof was right before you. Since then, however, I have been compelled to change my views, for several outyards that were established later disproved them. Locality and other conditions made the difference.

In the first locality, at my home yard, propolis was very scarce, so that no trouble from this source was encountered. At the outyards propolis was plentiful, however, and it was not long before it collected on the square edges to such an extent that the frames could not be crowded together properly. The edges being flat and wide, the propolis would in time accumulate with each handling; and every time the frames were replaced it would become packed into a solid mass. With the V edge this was overcome

to a certain extent, as it cut through when the frames were crowded together, and much better spacing can be obtained. Therefore, to be on the safe side, and to guard against such trouble, I have now decided in favor of the V-edge Hoffman frame.

MONEY IN CANDIED HONEY.

The writer had the pleasure to help in putting up candied honey for the retail trade while visiting at the establishment of The A. I. Root Company at Medina, and the result is that I am very much impressed with this idea of disposing of extracted honey after it has granulated. The editor of GLEANINGS has mentioned the method employed, in several issues, so I will not go into details here. I would ask the readers to read again what is said on pages 224, 276, 331, 589, however, as it will pay you to do so.

The gist of the whole matter is that the trouble of candied honey is overcome. The labor, trouble, time, and expense of reliequifying candied honey is done away with; and instead the honey is sold in the candied state, and that at a greater profit. Something worth thinking about, is it not?

Whole cans of honey that have granulated solid are stripped of their tin, as it were, leaving a solid cake which is then cut up into small oblong bricks weighing about one pound or a little over. Each brick is then wrapped in paraffine paper, after which another sheet of strong paper is put on. These are then placed in small cartons, and the whole (the carton with its brick of honey) is neatly wrapped in a beautiful wrapper of light-tinted paper with appropriate printing in gold. This makes a dainty package of nature's sweets that catches the eye of every person, and they sell like hot cakes, and at a fancy price too.

So well did this way of putting candied honey on the market impress me that I actually wished I could be at my Texas home to give it a trial there. This being impossible, however, I hope that some of my bee-keeping friends may try it and report.

It works all right here in the North; but I am not sure it will do so in our southern country; but I am inclined to believe it can be done; and as our colder weather generally comes during January, February, and March, I should like to call the bee-keepers' special attention to this matter so that those who are in position to do so may give it a trial. Of course, it does not get as cold in the South as it does in the Northern States, and the winters are not nearly so long; but honey granulates very readily, and becomes solid and hard, so that it can be cut up into bricks, as mentioned above, very readily. The only question that I see would be whether it would stand up during the warmer days. This could be solved by a thorough trial, however. Perhaps cold storage could be resorted to, which seems quite feasible. Who is going to try it? and who will report on it? Try it in a small way and let us know the results.



OUR apologies are due to our subscribers for the lateness of our last issue. Two attacks of the grip at just the wrong time kept E. R. R. at home when he could neither attend to editorial matter nor write the index. I am glad to report that I am very much better, and none the worse for the grip.

THE Central California Honey-producers' Association voted to disincorporate, not because of any lack of success or confidence in the management, as was stated in an exchange, but because its members desired to put themselves in close touch with a larger organization, national in its scope, now in process of development. Inquire of F. E. Brown, Hanford, Cal.

IS IT HERESY?

THE question now up for discussion is, whether mid-winter flights, toward the latter part of winter, of cellared bees, are advantageous or not. For many years the old heresy that a sick man needed to be bled until he had lost half his blood continued to hold full sway. Another old dogma was that patients suffering with fever should not be allowed to have water to drink. There is no doubt that the old physicians killed many of their patients by keeping both water and ice away from them. A certain dogma may have the indorsement of all the "authorities" and yet be all wrong. For years and years it has been considered bad practice to give cellared bees a mid-winter flight on a warm day, for cleansing. It is high time that we determine whether or not this teaching is like some others that have done such fearful mischief in times past.

THE BANNER HONEY COUNTY OF NEW YORK.

TOMPKINS Co., so I understand, has the honor of being the banner honey county of New York. Its output was over 236,000 lbs., or, figured in cars, it would be between seven and eight. When it is remembered that that county is only about 20 miles across it either way, these figures are somewhat remarkable; but perhaps it will be better understood when it is known that the largest bee-keeper in the world, probably, at the present time, Mr. W. L. Cogshall, has something over 20 apiaries within its borders. There are other counties in the United States that will show a larger output of honey, but these counties are as large as some whole States in the East. I refer to Los Angeles, San Bernardino, and San Diego, in California. All these central counties in

New York yield immense amounts of honey. The territory is already overstocked, and it would be useless for an outsider to try to squeeze in.

HONEY-DEW IN HONEY.

IN one of Dr. Miller's Straws in this issue he strongly protests against a proposed definition that is now being seriously considered by the leading chemists of the country, that excludes honey-dew from honey. If such a definition is adopted it will be a most severe blow to the bee-keeping industry. There are many bee-keepers in the country who get a little honey-dew every year, and more still who get it occasionally, and it would be *simply impossible to keep it out of their honey*. A small amount of it does not hurt the flavor in the least. But honey containing such small amounts would be classed by the chemists as adulterated, and both the producer and the seller would as sure as fate come under the ban of the pure-food law. Such a condition would work untold harm to thousands and thousands of innocent people, and I hope our subscribers will utter a most mighty protest. Don't write to us, but to the *chemists* (see Straws), and ask them to leave the definition as it was, and tell them that honey-dew where it is gathered *can not be kept out of pure bee honey*. It will not do to delay this matter one minute.

I suggest that, in addition to the leading chemists, the government apicultural expert, Frank Benton, should be written to, for he, I am sure, would present the protests to the proper authorities at the Department. Address him, care Department of Agriculture, Washington, D. C. The chemists are our friends, and are willing to serve us; but they must be enlightened, and that speedily.

S. A. NIVER AND HIS NEW QUEEN; THE ORIGIN OF THE FENCE SYSTEM.

CARDS are out announcing the marriage of Mr. S. A. Niver, the honey-man, and Mrs. Alfaretta Hull Jahnke, on the 26th of December last. Mr. Niver, it will be remembered, was associated with Mr. Miles Morton, the man who for many years used the fence separator, and from whom the Root Company obtained the basic principles of the fences now sold by all the supply-manufacturers. It was Mr. Niver who, at the Buffalo convention, insisted I should go and see Mr. Morton. I protested that I hadn't time. "But you must come," he urged; "Morton has something that the bee-keeping public ought to know about," and I went. But for this visit the fence and plain-section system might not have been cataloged as they are in nearly all the supply catalogs of the country. Niver as well as Morton has contributed to the bee-keeping world something of great value.

Niver's specialty now is selling comb and extracted honey direct to consumers, more particularly to the foreign class. He told me when I saw him last he could make anywhere from five to ten dollars a day. So much for Niver. We do not know any thing

about his new queen, but we extend to the pair the compliments of the season and our best wishes.

WILSON AND HIS "QUEEN."

HORACE GREELEY used to say, "Go west, young man." A. I. Root has often said, "Get married, young man." At all events there is one bee-keeper, Mr. W. H. Wilson, of Derby, Vt., who has recently taken Uncle Amos' advice. In commemoration of the event he sent a couple of photos taken by his "queen," as he calls her. One of the pictures, page 72, is suggestive of "sweetheart," for you know that all honey-producers have sweethearts, or would have if A. I. R. could have his way. Or the picture may indicate that the happy pair are enjoying their "honeymoon." In either event may their lives be those of honeyed sweetness, without a sting; and may he who has promised to love and protect her never be ashamed to call her "sweetheart," even when the silver hairs and furrows creep over the brow of that queen of his hive.

Mr. Wilson says that he has bought a good many queens, but this he positively avers is better than any five-bander he ever owned, for she is *all pure gold* you know.

Say, I do enjoy looking at those "smiles that won't come off." The only person who would envy them their happiness is the old bachelor who can't see any sense in the advice of the sage from Medina.

The other picture shows a corner in Mr. Wilson's bee-yard of some 80 colonies. Evidently a swarm had just been hived, or perhaps the queen's wing was clipped, and the swarm has returned and will shortly go in to see what's the matter. Mr. Wilson says his wife is not afraid of the bees; indeed, she is very much interested in them. She will take care of them, with his help, nights and mornings, for he works at a near-by granite-quarry.

LOUIS H. SCHOLL AND THE SOUTHWESTERN DEPARTMENT.

BEE-KEEPING among the Rockies has taken so well with our Western contingency that we have decided to have an editorial representative in the great Southwest, taking in the vast commonwealth of Texas—a State that has within its borders some of the best, if not the best, bee-paradises in the United States, and which promises in the near future to be one of the greatest honey-producing sections in the world. Its honey-producing territory is almost unlimited, and all it needs is railroads to push out into the unoccupied fields so that bee-keepers and ranchers can get their honey and crops to market.

In casting about over the field for a suitable man to edit this department I could think of no one better fitted than Louis H. Scholl, at one time editor of a bee paper himself, a close student of bee culture from boyhood up, and now a salaried instructor and experimenter at College Station, Texas, where apicultural experiments and bee-

keeping are especially taught. He has consented, at least temporarily, to take charge of this department, and the same will appear once a month, alternating with Bee-keeping among the Rockies, by J. A. Green. They will not in the least conflict with each other, as they will occupy fields separate and distinct, although naturally, of course, both may write on the same subject and discuss the same question.



LOUIS H. SCHOLL.

By courtesy of the American Bee Journal.

Mr. Scholl has spent a few days with us, studying some phases of apiculture that have been especially developed in a large bee-supply establishment. He makes his editorial bow and acknowledgments in his department, which appears elsewhere.

SIDELIGHTS FROM THE ST. LOUIS CONVENTION; CAUCASIAN BEES, THE GENTLEST IN THE WORLD.

CONSIDERABLE was said at this convention for and against this race of bees. It was generally admitted that they were probably the gentlest bees in the world, but there was more or less difference of opinion as to whether they were excessive swarmers and otherwise undesirable. Mr. Benton said that, so far as he had tested them, he had found them to be good honey-gatherers, and so tractable that any thing one desired to do with bees could be done with them without smoke and without a veil at any time, early or late, whether they were getting honey or not. They could be brushed from the combs with the bare hand, or one could even hammer on the entrance and brush the bees from the entrance, and do any thing with them, no matter if the propolis snapped, and no matter if the time of day was undesirable. If you bothered them in the fall

in bad weather they might occasionally sting. Mr. Abram Titoff, the Russian representative who has seen them in their native clime, confirmed what Mr. Benton had to say. But these bees had one fault, he thought, and that was, excessive swarming. "If you take away the queen-cells to-day," he said, "by to-morrow they will make twenty or thirty more." Mr. Kretschmer, who had lately traveled through Germany, gave a very unfavorable report of them. He said they had been represented to him as being stingless, but they did sting him all the same. They swarmed so much he was told that some were going to get rid of them.

Whatever might be their faults, the opinion was expressed that they could be kept in cities, with perfect impunity to the general public.

While on this subject it might be well for me to say that Mr. Titoff, who is with us, has already made arrangements to secure a number of these Caucasian queens direct from Russia. We will probably have some imported, as well as daughters from imported, ready for sale some time next summer. We expect the queens here in late spring.

HOLY-LAND BEES.

Mr. W. H. Laws, a queen-breeder at Greenville, Texas, spoke very favorably of these bees. He had not found them as cross as represented. This seemed to be at variance with the experience of some. Mr. Benton explained how this difference of opinion might arise. He said that the bees south from Mount Carmel were quite different from those north. The term had been invented by Mr. D. A. Jones to cover both types of bees. The first bees sold under that name were really hybrid crosses between Cyprians and Palestines. Those southward from Mount Carmel Mr. Benton called the Palestine, and those northward the Syrian races.

BABY NUCLEI.

Considerable discussion arose as to whether these were suitable for the ordinary honey-producer. Many thought not—that these little boxes of bees were very difficult to handle, even by experts. Some of the queen-breeders held the opposite view.

BLACK BROOD.

Some interesting discussions took place regarding black and foul brood in York State by representatives who were present. It was shown quite clearly that there were two diseases, one differing materially from the other. Mr. Stewart, one of the inspectors, stated that black brood first made its appearance in Schoharie Co. from bees brought from a Southern State. It was confined to a small area, but soon alarmed apiarists by the great mortality it caused among bees. Unlike foul brood it gave off a sour disagreeable smell, and unlike foul brood too it refused to be drawn out in a rubberlike string. The effect of the disease varied greatly in different apiaries as well as in different colonies.

TREATMENT.

His method of treatment was as follows: All apiaries should be isolated as much as possible. Colonies should not be set close together. Diseased bees should be shaken on clean frames of foundation as soon as discovered, and fed a little sugar syrup for a week to restore their vitality. He deemed it advisable to establish a hospital apiary in some isolated place for the treatment of the diseased colonies.

Mr. Stewart also explained that Italians and some of the newer races of bees would stand the disease much more readily than the old-time blacks. In one apiary in particular of 60 colonies, 59 of them were black and one was Italian. The 59 blacks all died from the disease, while the one Italian remained healthy, and stored a good lot of sections besides. So noticeable was this immunity of the yellow stocks that inspectors had been in the habit of advising those who had black and hybrid bees to Italianize as soon as possible, and introduce Cyprians or Carniolans—any thing in preference to the old-fashioned black.

W. D. Wright, one of the inspectors, sent a paper in which he called attention to the fact that in Quinby's book of 1865 the statement was made that "Italians are very much less subject to foul brood than blacks;" that "since their introduction," quoting from Mr. Quinby, "in my apiaries the number affected with this disease has diminished five-sixths." Other evidence was introduced showing how the yellow races were more proof against foul brood.

A NEW BEE DISEASE.

Much testimony was introduced, showing that a peculiar malady among bees had made its appearance in various parts of the country. Thousands of bees would be found in the grass, climbing up on timothy heads, or hopping from one point to another, being able to fly only two or three inches, and then run in the grass as if they were in a hurry to get somewhere. Some reported that this trouble appeared before the honey-flow, and others after. It would come suddenly, and disappear as suddenly. Indeed, in one case Mr. Benton sent an expert to look over an apiary that had had this trouble, and before the man could arrive the malady had entirely disappeared. Whatever it was, it was somewhat serious. In some cases it was reported that whole apiaries had been depopulated of half their strength within two or three days. When this occurred in the honey-flow, it put a stop instantaneously to honey-production.

BEE PARALYSIS.

A very interesting and valuable paper on paralysis was read by Mr. O. O. Poppleton; but as we have already given his process in full in these columns I will not rehearse it again here. There can be no question that Mr. Poppleton knows more about this disease than any other living man in this country; and the fact that he has two methods of cure, either of which is reliable, is very suggestive at least.



THE HARRISBURG MEETING.

Foul Brood and Foul-brood Legislation for Pennsylvania; the Supply Business.

BY WM. A. SELSER.

The first annual meeting or second regular meeting of the Pennsylvania State Beekeepers' Association met at Harrisburg, Dec. 6. The meeting was called to order by Prof. H. A. Surface, head of the Division of Zoology in the Agricultural Department; Rev. D. L. Woods, of Muncy, Secretary. There was quite a large representation from all over the State, and names came pouring in from a large section as new members at the first session. Hon. Mr. Martin, Deputy Secretary of the Department of Agriculture, joined the Association, and became exceedingly interested in all its detail work, and offered to assist, through his Bureau, as far as possible, the work in every way. He further promised that, if the Association would furnish the speakers, he would see that they had a place, as far as possible, on the various farmers' institutes that were held by the Department throughout the State. His statements were met with hearty approval and great applause. A vote of thanks was extended to him for his assistance. Richard D. Barclay, a member of the State College, spoke of carrying on some experiments in apiculture at that place, and expects to investigate still further, and experiment on the various lines suggested.

After the report of the Secretary and Treasurer was read, reports of the various committees were heard, and the President appointed a committee on resolutions, consisting of Messrs. Cattleman, Woods, and Ferry. Mr. E. Pressler, of Williamsport, made his report of the convention of the National Association at St. Louis, emphasizing the procedure pertaining to the National Honey-producers' Association, after which the question-box was opened, and about fifteen questions of various natures answered and discussed with interest. The meeting closed with prayer by Rev. D. L. Woods.

At 5 P.M. a committee was appointed, consisting of the officers of the Association, along with Mr. Frank Benton, of Washington, and Mr. N. E. France, of Wisconsin, to visit the Governor. They had a conference of about forty minutes, in reference to securing a foul-brood law for Pennsylvania. Prof. Surface had worked hard in this direction in leading the Governor up to this meeting, and the Governor promised that he would do all in his power to secure this law. He suggested that the head of it be under

the department of Prof. Surface, which met with the hearty approval of the Association. Governor Pennypacker shows a very kindly interest, and made many inquiries in reference to the pursuit throughout the different parts of the State.

At 7:30 the meeting was again called to order by President Surface. Wm. A. Selser, representative of the Root Co. in Philadelphia and New York, made some extended remarks regarding the bee-supply business having been brought to the doors of the bee-keeper through the East, and the hearty satisfaction that the bee-keepers had expressed in visiting the different branches in being able to get their supplies within a few hours' notice at their own doors. He said that, while the expense might be increased slightly on account of establishing these branches, the bee-keepers everywhere had expressed their approval in declaring that they had not only been saved freight and annoyance, but it being so hard to anticipate their wants to any extent ahead, especially during the busy season, they felt the Root Co. had been really benefactors to the bee-men.

The president then made his annual address, reviewing the whole matter of the foul-brood law, and what has been accomplished in the State in the short time since its organization, and what he had planned for the future. Prof. Surface's address showed that he was thoroughly familiar with the subject in all its details. With such an able officer, the Association has great reasons to congratulate itself. The President spoke especially as working in conjunction with the local association, and hoped that all the local associations throughout the State would join the State Association in a body. He showed that the three associations, the local, State, and National, were all working in perfect harmony, and he urged every bee-keeper in the State to do all in his power to assist him by joining.

Next followed the paper by Dr. E. F. Phillips. He has been recognized, especially among the officials of the State, as a high authority on all matters, and more especially in a scientific way on bee culture. The doctor takes a deep interest in the practical part of bee-keeping, and the meeting had no one to pay closer attention to every detail of its proceedings than Dr. Phillips. Quite a discussion followed the reading of Dr. P.'s paper, and the meeting adjourned at 10:30.

On Wednesday, at 9 A. M., in the absence of the President and first vice-president, Wm. A. Selser was called to the chair. The meeting was opened by prayer by the Rev. Mr. Baines. After some discussion of the minutes of the previous meeting they were approved. N. E. France, who had been the guest of the Association, and had been brought from the West to attend this meeting, was then introduced, and made a very interesting address on foul brood. Two other papers were on the program for this meeting, one by I. C. Fuller, on bee-keeping as a business, and one by Mr. Gabriel

Hiester, on bees and horticulture. They stated they would gladly put their paper in writing, and defer reading it at this time in order to hear the further remarks of Mr. France. Between his address and the questions asked him, he was kept for nearly three hours on the floor. Dr. Hayes, a noted surgeon of Harrisburg, brought out a great many points in his questions to Mr. France, and great emphasis was laid on the fact of carrying foul brood from one apiary to another. Mr. Benton mentioned the fact that he had known of some inspectors of foul brood carrying the disease. Dr. Hayes impressed on the Association the importance of sterilizing clothing, smokers, tools, hands, and even finger-nails, of the operator over a foul-brood colony. The bacilli can be carried in many ways heretofore not thought of by the bee-keeper.

This meeting held over almost to the time of the opening of the afternoon service, and this session adjourned but a few moments to get a hasty dinner.

SWARTHMORE'S QUEEN-REARING.

At 1:30 the meeting was called to order by the President. After the opening prayer,

some discussion was brought out regarding the reports of committees. Then followed the paper by E. L. Pratt, of Swarthmore. His paper was also another one of the hits of the Association. Mr. Pratt went into details of the line of his work, and was asked many questions. The following is a synopsis of his report:

When he first began queen-rearing, the laborious methods employed quite discouraged him. He realized that, to continue in the business, he must hire more help or devise means to reduce labor; the latter was what he decided on. He reviewed both the old and the modern methods of queen-rearing, trying methods for himself personally in their various lines, and saw the necessity of having a separable and easily removable queen-cell in order to avoid the delicate surgical operations in transferring larvæ. He decided that the wooden cell-cups used by many breeders was a step in advance. The application from the top of the Swarthmore pressed queen-cups was explained, and many labor-saving points of the large cup were set forth by demonstrating. The process of waxing the cups, pressing the cells, and



A COUPLE OF BEE-KEEPERS ON THEIR "HONEYMOON." "MY HONEY AND I."
SEE EDITORIAL.

grafting them without royal jelly, was gone through with, and numerous questions from the floor were answered. A very important point was the Swarthmore open-top folding frames and the manner of applying cell-bars, incubating, and confining cages to them, through slits in the sheets, from the top of the hive, without disturbing the bees, which was also demonstrated, and showed many labor-saving points.

A number of small cups, set side by side in a little frame so as to resemble a comb, in which the breeding queen will deposit eggs, to save the long process of grafting by

hand, attracted considerable attention and brought forth much comment. It was shown how these little cups, each containing an egg, could be drawn from the frame, slipped into holding-shells, and given to the bees for queen-rearing, and how other cups could be replaced in the frame for future use in cell-getting.

Since 1881 he has been experimenting with "baby nuclei," and he has never used, from first to last, in these nuclei, more than a handful of bees in a little box for the sole purpose of mating queens. On the question of queen-mating, Mr. Pratt said twenty-five



BEE-YARD OF H. W. WILSON, DERBY, VT., SHOWING A SWARM THAT HAS JUST BEEN HIVED. SEE EDITORIAL.

bees are enough to mate a queen. Fifty will do it better, but more than a small teacupful is a decided disadvantage. The most intricate operation of the whole process of Mr. Pratt is the removing from a full colony a quantity of bees shaken in an empty hive with a little honey, and these queen-cups with larvæ in, to have a cell started for about forty-eight hours. It was very hard for him to make clear many of these points that were very clear to himself, as it was difficult, in such a very important process, to follow him from detail to detail, as one could if he were in his apiary, watching him work. The convention felt that Mr. Pratt had given them some very important ideas, and among many they could see why one could try these methods and fail, if they were not followed explicitly. It would be best by far for any queen-breeder who expected to make this his business to make arrangements with Mr. Pratt to go to his apiary and see him work, and demonstrate his theory, and compensate him for such service. It would be money well spent; and where many queens were bred, it would pay the breeder for any such time and cost the first season.

Mr. Pratt's methods have been condemned by many, simply because they have not been able to follow him as he directs. This seemed to be the sense of the meeting. His entire address met with great applause. In the evening Dr. Frear, from the State College, was to be present and discuss the standard of honey. The bee-keepers felt that this meeting more than repaid for their time and expense in attending; and with the many other things that were learned, the addresses of Dr. Phillips, Mr. France, and Mr. Pratt more than repaid them.

THE HERSHISER COMBINED HIVE-STAND AND BOTTOM-BOARD.

Its Value, Both in Summer and Winter.

BY OREL L. HERSHISER.

The salient objects of this combined hive-stand and bottom-board appear clearly after a careful study of the illustrations presented herewith.

Referring to the lettered parts of the engravings, A is the bottom-board; B the front, or alighting-board; C the bail-like support of the front, and D the flexible wire support of the rear ends of the bottom-board when the same is in ordinary outdoor use; E the pins used to regulate the size of entrance to hive and depth of space under the bottom-bars of frames; F the upper inside rim which forms a shoulder against which the bottom-board rests snugly when held in its highest position by the bail-like support C and the flexible wire support D; G is the hooks by means of which the alighting-board B is coupled to the bottom-board A—loops in the alighting-board B corresponding to

the hooks in the bottom-board A; and H is the front sill.

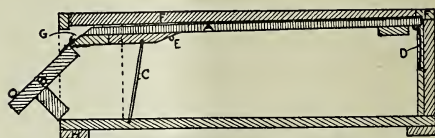


FIG. 1.—BOTTOM-BOARD; SECTIONAL VIEW.

Fig. 1 is a longitudinal sectional elevation through a vertical plane on a line between the two sides, which passes through one of the loops G, of a combined hive-stand and bottom-board, showing the relation of the various parts to the bottom and alighting-boards A and B respectively, in normal position for ordinary outdoor use. This figure, in connection with Figs. 2 and 3, clearly shows the manner of supporting the bottom-board A by means of the flexible wire spring D and the bail-like support C. The bottom-board A is lowered, for the purpose of enlarging the entrance to the hive, by pushing the bail-like support C back until it engages the pins E. One or more of these adjustments may be provided as needed or desired. The front board B is here shown in its capacity as an alighting-board, it being coupled to the hooks G of bottom-board A, by means of the corresponding loops on the upper edge of the alighting-board.

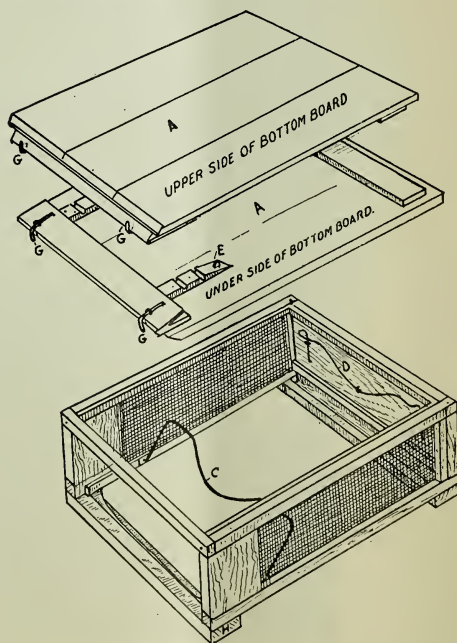


FIG. 2.—HERSHISER HIVE-STAND; BOTTOM-BOARD DETACHED; PATENT APPLIED FOR.

Fig. 2 is a perspective view of the hive-stand and bottom-board detached, showing details of construction of the upper and under side of the bottom-board A and of the stand. It will be observed that the flexible wire spring D is self-adjusting to any angle of the bottom-board A required in enlarging or contracting the entrance to the hive, it being sufficiently yielding for this purpose, and at the same time rigid to the extent of holding the rear end of the bottom-board A firmly against the under side of the rear portion of the upper inside rim F, Fig. 1. It will also be observed that the bail-like support C may be inclined at any desired angle for the purpose of lowering or raising the front end of bottom-board A to enlarge or contract the entrance to hive, and that, when closing the hive and stand, the bail-like support C is pulled forward until its upper part drops into the rabbet of the front sill H (rabbet shows in Fig. 2, but is not lettered), thus permitting the bottom-board A to be dropped to lower position where it rests snugly upon the upper surface of the lower inside rim into which the bail-like support C hinges.

Fig. 3 is a perspective view of the combined hive-stand and bottom-board adjusted for ordinary outdoor or summer use, with bottom-board A in highest position, resting snugly against the shoulder formed by the upper inside rim F; the front board B in position as an alighting-board, and the flexible wire support D shown by dotted line. The separate view of the alighting-board B, Fig. 3, shows the loops by means of which it is coupled to the bottom-board A by engagement with the corresponding hooks G, Fig. 3. It will be observed that the front board

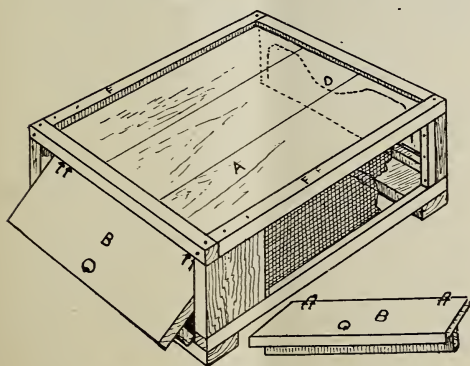


FIG. 3.—HERSHISER'S BOTTOM-BOARD AND HIVE AS PREPARED FOR SUMMER USE.

(alighting-board) B is provided with a substantial cleat the full length of its under side, joined in such position as will support it at the proper angle when in use as an alighting-board, and also to lock the bottom-board A securely in its lower position when used as a front board to confine the colony of bees within the hive and stand.

Fig. 4 is a perspective view showing the

bottom-board A lowered and the alighting-board B inserted as a front board, which closes up the hive and stand as used in cellar wintering or in the transportation of bees. The bottom-board A is held securely in place by the cleat just beneath the flexible wire spring D and by the cleat on the front board B, shown on the under side

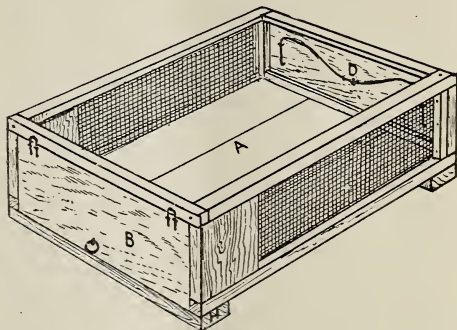


FIG. 4.—HIVE-STAND AS ADAPTED FOR CELLAR USE.

thereof in Fig. 3. When so closed, the bottom-board A rests snugly on the cleats forming the lower inside rim into which the bail-like support C is hinged at sides of the stand, thus making it impossible for the bottom-board A to get shifted from its place while the front board B is inserted. A small ring fastened midway of the lower edge of the front board B, as shown in Figs. 1, 3, and 4, is convenient in inserting and withdrawing it. The front board B may be held in place by means of a button, or by a wire key dropped through eyelets screwed into the front of the stand just above the upper and below the lower margins of the front board B. Devices for holding the front board B in place, when stand is closed, are not shown in the engravings.

The wire-cloth screen at sides of stand, as shown in Figs. 2, 3, and 4 is for the purpose of giving needed ventilation at all times when the colony of bees is inclosed.

A few of the desired objects to be attained by the use of this combined hive-stand and bottom-board may be summarized as follows:

First, in wintering in the cellar or special repository the bees are confined within the hive, and the compartment below formed by the inclosed stand. Thus there will be no dead bees littering the cellar floor. Many bees which become uneasy, and disengage themselves from the cluster, but which have sufficient vitality to pass the winter, will not die at such time, because of the ease with which they can reunite with the cluster. These uneasy bees would surely die on the cellar floor if they could get away from the hive. By the use of this device the bees will come through the winter with the greatest possible numerical strength and vitality. Operatives will not be stung when placing the bees in the cellar or removing

them therefrom. No mice can enter the hive while closed for the winter. Winter feeding may be accomplished directly beneath the cluster, and the interior of every stand is accessible by means of the removable front board. All the colonies of an apiary may be removed from the cellar and placed in their permanent outdoor positions before liberating any of them; then by adjusting bottom-boards at dusk all will begin flying the following day, or as soon as conditions are favorable, and there will be no confusion resulting from the change; swarming out, and the bees of some colonies joining other colonies, weakening the former and making the latter stronger than is necessary, will be greatly reduced.

Second, by the use of this combined hive-stand and bottom-board, in connection with any desired hive-body, a hive is provided in which the safe and easy transportation of bees may be accomplished, adding greatly to the prospects of success in migratory bee-keeping and the management of out-apiaries. This point is obvious. The bottom-board and hive-stand is fastened to the hive-body permanently, and all that is necessary in preparing for the removal of the bees, in addition to fastening on the covers, is to lower the bottom-board and place the front board (alighting-board) in position to close the hive at evening when the bees have quit flying. The closing or opening of the hives to confine the bees or admit them to flight, as the case may be, is quickly and effectually done, and the maximum of safety in the shipping of bees by freight, express, or otherwise is obtained. Shipping and handling of the bees is accomplished with the greatest safety from stings, and the abundant ventilation and room in the inclosed hive effectually prevent overheating or suffocating the bees or the melting of the combs. A device which insures comparative safety from stings to horses, operatives, and employees of transportation companies is worthy of much consideration, as the dread of stings is perhaps the chief obstacle in the way of obtaining competent unskilled help in the apiary.

Third, the construction of this combined stand and bottom-board is such that the entrance to the hive will not clog with dead bees when wintering on the summer stand; rain, snow, and sleet will not beat in, and dead bees are easily removed from the hive by the colony without the live bees going outside of shelter. Also the apiarist may quickly and easily remove and scrape the bottom-board clean, and return it with scarcely any disturbance to the colony, and without removing the lid.

Fourth, by its use the entrance to the hive may be adjusted easily and quickly to suit the needs of the colony. The bottom-board may be drawn forward till only a bee-space remains at the entrance. A notch may be cut in one corner of the bottom-board, and the same drawn forward until the entrance is all closed except the notch, thus adjusting it to the flight of such small number of bees

as is desired. The bottom-board may be lowered one-fourth, one-half, or full depth of front opening of the stand when it is desired to give abundance of ventilation and flight room during periods of heavy honey-flow, and to retard or prevent swarming as much as possible. The large entrance is also useful in the hiving of swarms; and the ease with which the colony may be safely confined in the hive greatly facilitates the placing of the new swarm on its permanent location. The adjustments of the bottom-board are ample to suit every need of the colony as to its size and to meet the requirements of varying temperatures.

Fifth, a bottom-board and stand is provided for the hive, which makes it an easy matter to bring the bees under the absolute control of the apiarist, should they engage in wholesale robbing. When this occurs, as it is likely to in the experience of every apiarist, how easily and effectually it may be overcome by closing every hive affected!

The ample ventilation will prevent any ill effects from the confinement of the colony.

Sixth, this hive-stand and bottom-board provides a ready and expeditious means of preventing the melting of the combs of the hive and the consequent ruin of the colony during periods of intense heat in hot climates. This is accomplished by lowering the bottom-board to the position required for cellar wintering or for shipping, or by removing it entirely; allowing the air to circulate freely under the combs and through the sides and front of the stand, thus giving the greatest possible relief.

It has been the aim of the writer to provide a hive-stand and bottom-board simple in construction, easy of manipulation, and universal in all the adjustments that would be useful or profitable to the apiarist. As to the construction, it may be said that the parts should be accurately cut; but that any one with sufficient ingenuity to assemble the parts of supers or hives could as easily assemble and put together these combined hive-stands and bottom-boards. The manipulations are as simple as could be imagined in any of the other parts of a hive. In fact, any of the changes may be made quicker and easier than a super could be removed from a hive. The adjustment from that for outdoor use to that for cellar wintering may be made at the rate of 100 colonies in less than half an hour, and without smoke, as the bees are numb at this time of year. It will, undoubtedly, be admitted by all scientific apiarists that a hive-stand and bottom-board which may be expeditiously changed from its adjustment for ordinary outdoor use to that for the most successful wintering in cellar or special repository; a stand and bottom-board by which the entrance to the hive may be quickly enlarged or contracted to any required size; which is always in readiness to control robbing or to give relief from excessive heat; which may be used to control swarming, so far as the giving of plenty of ventilation will control it; into which the rain and sleet will not beat, and into which the

driving of snow will be reduced to a minimum, is universal in its adjustments.

Buffalo, N. Y.

[Mr. Hershiser showed me this combined bottom-board and hive-stand at the St. Louis convention. I was convinced then, and am still of the opinion, that there are some good features about it. Whether bee-keepers will be willing to pay the extra expense of a device of this kind I can not say. Mr. Hershiser feels that it will more than make up for the extra cost in the saving of bees in the cellar, besides the general convenience in outdoor manipulations. He may be right. Besides the question of expense there is one objection, and I am afraid it is a serious one; and that is, the movable floor-board. Two years ago we put out the Danzenbaker bottom-board that had a floor that was tilting. It could be lowered much the same as the floor in the Hershiser device, except that it did not have the same range of movement. We were compelled to take the device off the market, for the reason that the bees would propolize the points of contact, making it almost impossible to move the board up and down; and I see no reason why Mr. Hershiser would not have just the same trouble that some of our customers had. The Root Co. received, and justly, too, more or less complaints that the bottom-board was not movable. The boards would swell so tight as to render the floor as fast and secure as if it had been nailed. To overcome this objection we made new floor-boards with the grain running crosswise, in such a way that the expansion and contraction of the wood would not interfere with the up-and-down movement of the board. While that overcomes this trouble of shrinking and swelling, we could not surmount the difficulty of propolis gluing the board fast, or so securely as to make its movement up and down very difficult and unsatisfactory.

I feel sure of this: That the boards in the floor will have to be run the other way to. Then the only difficulty will be that of propolis, providing always that the workmanship is perfect. Aside from this one difficulty there are features about this bottom-board that we feel sure are good, unless, perchance, it is bad practice to shut bees within a hive. It used to be said that they should never be shut in. I presume that is true with the ordinary entrance and bottom-board; but in the case of the Hershiser the matter may be very different.—ED.]

THE FOUL-BROOD PLAGUE.

The Five-banders Much More Subject to the Disease.

BY C. E. WOODWARD.

I have read and reread Mr. C. F. Bender's article on page 1110, Dec. 1, concerning the foul-brood plague, with much interest; and while I have had much experience with the disease here in the tropics, although I have

never found out or heard that the introduction of new queens does ever effect a cure, it is a fact that the yellow beauties, or, as some call them, five-banders, are very much more subject to all diseases than are the blacks or three-banded Italians. Three years ago I found in my home apiary, consisting of 400 colonies, in every case when a colony was struck with this plague it was sure to be one of my very yellow stocks. Now, there never was and never will be an effect without a cause. I know the doctor will scratch his head, and say, "Look out, young man, or I will trip you up with one of my Stray Straws." But, doctor, I'm on to you as big as a cart-wheel. All who have had experience with this yellow strain of bees know very well what their propensity is to rob; hence the rapid increase of the disease.

I confess I like and prefer those yellow beauties; but to tell the truth I've had to dispose of them for this one fault. An old priest told me, while he was at my apiary, that he kept bees long before the war, and he sent to a queen-breeder in the United States and bought some Italians, and after a while they all got sick and died. I am pretty sure that it was the foul-brood plague that killed the old man's bees, as the natives here in Cuba at that time did not understand the treatment of the disease, and, in fact, they do not understand it very much better at the present day.

Mr. Bender seems to think that the plague generated in his own apiary. But I feel sure it did not, nor will he effect a permanent cure by introduction of new queens. I have cured a good many cases by taking away all the brood and leaving all the rest of the combs with the bees, but not in all cases does this work; neither do I trust to fumigating with formaldehyde or drugs of any kind.

I condemned medicated syrups and all the drugs a long time ago. The treatment of foul brood is no drama. But let me say to Mr. Bender that simply keeping pure Italians will not by any means avert further destruction. If the cause has not been removed, and all infection from said colonies, the disease will in due time reappear.

HOW THE DISEASE IS SPREAD.

I had noticed that, whenever a colony had become diseased with this plague, there were sure to be three or four colonies very near this one diseased colony; and then, perhaps, away back somewhere in the apiary there would be five or six more diseased. This I found to be brought about by the field workers from the diseased colonies coming in loaded with honey, which were quite apt to make a mistake and get into the neighbors' hives, and, of course, there would be no kick on the part of the diseased bee from the other hive, because it had a load of honey with it, so it was permitted to come in and give the new honey to the young brood, and, of course, in due time disease was completing its work. Here in the tropics the apiaries should be requeneed and recombed every three years to insure

the best results. This would keep the bees from all foul brood. When I say foul brood I mean black brood and pickled brood.

Matanzas, Cuba.

THE WINGS OF THE BEE.

II.—Abnormalities in Venation.

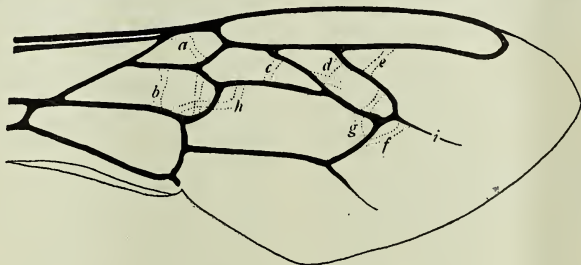
BY E. F. PHILLIPS, PH.D.

In the first article under this title the typical venation of the wing of the bee was described, and the ways in which it differs from the wings of a typical hymenopterous insect were pointed out. It is a common saying, that no two living things are exactly alike; and it is certainly true of bees, as can be seen by a series of measurements of any organ. In bees' wings we not only get differences in relative size of parts, but we frequently meet with cases of abnormal venation in which certain veins are lacking, or, as is more frequently the case, in which extra veins are thrown in.

If an animal were in all respects an average between its two parents, then all the offspring of any two parents would be identical in every particular; but this, common experience teaches us, is not true; for offspring vary all the way between the two parents, and frequently possess features seen in neither parent. One of the questions which have long troubled scientists is the

which we found to occur in the wings examined, for such variations are particularly interesting as showing the means of arriving at the differences in venation which we find in different species of insects. It is to these abnormalities that I wish to call attention at this time.

The figure accompanying this article shows (in dotted lines) where the abnormalities occur most frequently. The heavy lines indicate the normal veins. It is very difficult to record these irregularities in any kind of table, since the irregular veins vary widely in extent, and do not arise at exactly the same place in many cases. An attempt was made to classify these according to the veins from which they branch, their extent, and direction. In this we recorded cases where a vein bends (*b* in table) from its true course, indicating but a tendency toward abnormality, as well as the well-marked cases. The extent of the abnormality is expressed roughly in the terms "very small" (*vs*), "small" (*s*), "almost complete" (*ac*), and "complete" (*c*). The letters used to designate these abnormalities are in no way connected with the naming of the normal veins, but are chosen merely as a convenient means of marking the irregularities. It will be understood that it is impossible to draw at all times the same line between, for example, the terms *small* and *very small*; and the table given below is of value only as giving an idea of the number of cases of abnormality.



THE WING OF THE BEE.

reason for this variation. According to the theory of Darwin there is a survival of the fittest individuals, while the less fit perish; and this could not be true unless there were a difference in the fitness of the individuals; in other words, this variation furnishes material for the evolution to work on; and without variation there could be no advance. There has recently been considerable interest in the study of variation, among students of biology, to see and measure exactly the amount of this deviation from the type form in order to discover if possible the laws of variation. As a contribution to this work Dr. D. B. Casteel and I measured several veins on one thousand wings of drones and workers, and found that the drones showed the greater variability (see GLEANINGS for May 1, 1904).

In connection with this work we also recorded all the cases of abnormal venation

The letters in the table in italics refer to the figure.

500 DRONES.

a, 82 *b*, 32 *vs*, 109 *s*, 1 *ac*, 2 irregular.
b, 7 *s*, 1 double *s*, 4 *ac*, 6 *c*.
c, 3 *vs*, 18 *s*, 2 *ac*, 13 *c*, 2 irregular.
d, 11 *b*, 27 *s*, 1 double *s*, 7 *ac*, 2 *c*.
e, 9 *s*, 1 *ac*, 5 *c*.
f, *g*, 8 irregular at anterior end.
h, 5 *s*, 2 *c*, 1 very irregular.
i, none.
 Other irregularities, 14.

500 WORKERS.

a, 2 *b*.
b, 2 *b*.
c, 1 *b*, 3 *vs*, 9 *s*.
d, 3 *b*, 6 *vs*, 9 *s*.
e, 1 *b*, 1 *vs*, 3 *s*.
f, *g*, 2 irregular at anterior end.
h, none.

i, 2 lost veins, 1 almost lost.

Other irregularities, none.

Deducing the cases where more than one irregularity occurs on one wing we have 271 irregular drone wings and 37 worker wings. Leaving out of consideration those cases in which merely a bend is recorded, there are 206 irregular drone wings and 30 irregular worker wings, or almost seven times as many for drones as for workers.

The figure and these tabulations show that there is one region of the wing that is far more variable than any other. In the classification of the bees the sub-marginal cells are of great importance—that is, those cells which are in the second row from the front. Some genera of bees have but two sub-marginal cells; others, like *Apis*, have three; and from these observations we find that the part of the wing which varies most in the whole group of bees also varies most in the one species.

No attempt was made to correlate definitely these abnormalities with any lengths of the neighboring veins; but in a general way it can be said that the largest wings of each sex are the most abnormal, and this fact explains to some extent why the drone wings are so much more abnormal than those of the workers.

Philadelphia, Pa.



ARTIFICIAL INCREASE.

"Good morning, Doolittle. Jones wants a little talk with you. What do you say on this matter?"

"I am willing, Mr. Jones. What shall we talk about?"

"I lost so many bees during the winter and spring of a year ago that I was not able to get my combs occupied with bees again during the summer, and I wish to know if you have some plan of rapid increase that I can adopt next summer so as to get bees on these combs early in the season."

"There are different ways of making increase under circumstances similar to yours; but after trying all I like what is termed the 'nucleus-box system' the best of any."

"That is something I never heard of. Please tell me about it."

"To work this plan we first want to get out boxes of suitable size for our operations, and I know of nothing better than an ordinary twenty-section shipping-case for colonies of the size you will wish to go on your combs. After having made your cases, all but the glass, use a piece of wire cloth for each side where the glass would go, nail-

ing the wire cloth permanently to one side, while the other side has wire cloth nailed to a frame, and this frame hung to the open side, similar to the way a door is hung to a house."

"Pardon me; but what do you use for hinges?"

"I use leather, cut from an old boot or shoe, and find that this answers all purposes; but if you prefer you can buy the small butts or hinges sold at the hardware store."

"I had not thought of leather for hinges, and I think it would answer well. But go on."

"Having your nucleus-box completed, get your tinsmith to make you a great big funnel, which should be 18 inches across the top, with the usual slope of side, coming down to a 2½-inch upright, or outlet, which should be about 2½ inches long. If this outlet is much less than 2½ inches in diameter, the bees will clog, instead of readily passing down through, when a frame of bees is shaken into the funnel. Having the funnel made, strike two opposite sides against something, or squeeze together till you have an oval funnel about a foot wide and 22 inches long, in the diameter of the two ways across the top."

"Why do you fix it thus?"

"This will collect the bees in better, when the frame is shaken in it, than it would if left in the ordinary funnel shape, especially securing those which have a tendency to fly when they are being shaken from the frame."

"I see. But how are they to be put in the box with this funnel—through the door we have made?"

"No. A hole is to be bored in the top of the nucleus-box which will just let the small or upright part of the funnel down into it, this holding the tunnel in an upright position ready to receive the bees when shaken into the large part. Over this hole fix a little door or button, to cover the same when the bees are in and the funnel out. Then, by means of a spring, button, or wedge, fasten a section of honey taken from some of those you have left over (only partly filled) from the season previous, and your box is complete."

"What is this section for?"

"This is for food for the bees while they are in the box, as we often wish to keep them thus longer than the food they take in their sacs when shaken off their combs will last them."

"That is easy—seems strange I did not think of their needing food. But when shall I begin operations?"

"The next work is to crowd the colonies you have in the spring toward full colonies, just as fast as possible, using any or all the plans with which you are familiar for keeping them warm, stimulating, etc.; and as soon as any one of them gets strong enough, prepare it for the rearing of queen-cells by slipping a queen-excluding division-board down in the hive so as to cut off a part of the frames of brood from the queen, as Editor Root has told us how to do so often

in GLEANINGS. You know of this matter, don't you?"

"Yes, I remember about it; and if I have forgotten any of it I can turn to the matter, as I have the back numbers of that paper for some years, loaned from a friend. But will not this hinder me from using this colony for increase?"

"Not after you get under way, for by this time the weather will become warm enough so you can take bees from it the same as from the rest. As soon as any of the colonies are full of bees, so they can spare bees from two frames, or from half a pound to a pound, and you have ripe queen-cells, take the cells out and put them into a queen-nursery to hatch. Then as soon as these queens are from one to two days old, go to any hive which can spare bees and take out two frames, being very careful that you do not get the old queen on either of them, and shake the bees from them down through the funnel into the box, doing this about ten o'clock. Now close the box and set it in some dark room till near night, when you will get one of the virgin queens in a cage having a stopper in it filled with 'queen candy,' so that it will take the bees about fifteen hours to eat out the candy and liberate her."

"How am I to get this cage in with the caged bees?"

"Pick up the box of bees and set it down suddenly, hard enough so that all of the bees in the box will fall to the bottom, when you will quickly open the funnel-hole, put in the queen-cage, and secure it there, an inch or two from the top of the box, by means of a bent wire. Having the caged queen in, set the box away again, leaving it till near sunset the next day, when you will find the bees all clustered about their new queen, and hanging like a swarm from the top of the box, or about the section of honey."

"This is new to me. All the bees I ever caged kept trying to get out, but I presume the reason is because I caged them without a queen."

"Yes, queenless bees will always worry to get out of a cage, and you will find these bees will, till they have the queen given to them. But we will talk on. You will now go to any hive that can spare a frame having brood in it, and, after taking it, replace the same with one of your empty combs you wish to use, when you will brush all the bees off the frame of brood, at the entrance of their hive, and put this frame of brood in a hive where you wish your new colony to stand, having in the same three or four of your old combs, some of which should have honey enough in them to keep the little colony from starving, should there be a scarcity of honey from the fields. Put the frame of brood in the center of the old combs used, and use a division-board or dummy to contract the size of the hive to the number of combs used. Having your hive fixed as I have just outlined, take your box of bees to it and open the door, and poke out a few in front of the entrance, when they will imme-

diately run in with fanning wings. As soon as they begin to do this, poke or shake out more, or, in other words, proceed to hive them the same as you would a swarm. When all have run in, adjust the entrance to suit the size of the little colony, making it not very large if it is at a time of scarcity, when they will be likely to be troubled with robbers."

"That sounds well. But is there not lots of work to it?"

"It does look like considerable work when telling it; but after practicing all the plans given I do not see that it takes more time than the easiest of the others, and has the advantage that you can take bees from any colony you wish, and they will stay where put, and work as well as any swarm of like size."

"Well, if they will stay I shall be glad I came to see you, for the trouble I have always had with all artificial increase has been that the bees would almost all return to their old home and leave the brood to die."

"That is apt to be the case, I know; but with this plan they do not. What is applicable to one little artificial colony will work the same with all, so all you have to do is to keep on in the same way till you have all your combs covered with bees. And you will do this before you hardly know it; for as soon as the young queen goes to laying you can keep adding combs from your old store till eventually your hive is full."

"Can I secure any surplus honey from these little made colonies?"

"If you can commence your work quite early in the season you will doubtless secure some surplus from fall flowers. But don't try to hurry too fast. The whole secret of success, in this stocking of combs, lies in not commencing operations till the colonies are strong, nearly enough so to swarm, and then not robbing them of bees till they are too weak to work to the best advantage, using few bees for each little colony early in the season, and more and more as the season advances, thus having all come up to full colonies by the time the fall flow comes on."



A. I. R. NOT THE ONLY ONE WHO HAS A CABIN IN THE WOODS.

[Two very pretty pictures were received a few days ago which we take pleasure in submitting to you. All we have in regard to them is the following on a postal card:]

I inclose two photos to show Mr. A. I. R. that he has not the only cabin in the woods in beedom; also of a house-apiary that is a



ANOTHER "CABIN IN THE WOODS."

success, although the photo was taken before the windows were put in.
Vacaville, Cal.

THOS. PRICE.

[The picture with the lady in front of the door, we take it, is the "cabin," from the fact that there is a stovepipe coming out of the roof. There are also some utensils standing on the hive in front that look as if they might have breakfasted outdoors. I

wonder if that is a horseshoe hanging up over the door to insure good luck. Well, I can tell you there are thousands of people who might have good luck and health thrown in if more of them would live, at least a part of the time, in a cabin in the woods. Mrs. Root often speaks even now of the comparative ease of housekeeping in a cabin compared with our commodious and comfortable winter home. We wish our friend



HOUSE-APIARY AFTER THE FASHION OF THE "CABIN IN THE WOODS."

would tell us a little more about that house-apiary that is a success, especially if he keeps it going several seasons without finally deciding he would rather have the bees out in the open air with room enough so he can walk around each hive.—A. I. R.]

SHOULD SNOW BE SHOVELED AWAY FROM
HIVE-ENTRANCES? WINTER FLIGHTS
FOR OUTDOOR BEES; DRONES
IN DECEMBER.

A few days ago I took a shovel and broom, and dug my way through a snow-drift from the house to my hives, for the purpose of giving my bees a chance to fly out should a clear, mild day come. I cleaned the snow away from the entrance, and about four feet off to the ground, as I had often noticed how bees were soon submerged when out flying and happened to alight on soft snow. I took a thin stick and scraped the dead bees and refuse away, and was surprised to see a dozen or more *drones* emerge, take flight, and return without any objection on the part of the workers which were crowding out on the alighting-board owing to an accidental jar I gave them while shoveling. Don't you think it unusual for drones to be in a hive so late in December?

How many plies of burlap should be placed on top of frames when wintered outdoors? I have the Simplicity hives, with room between roof and frames for a good thick pad.
Roxborough, Pa. T. A. BECHTEL.

[If the snow is loose, that is to say, is not packed solid or frozen around the entrance, I should let the hives entirely alone. Early in the winter it is not necessary for bees to have flights, and it is better, perhaps, for them not to have them until such time as it warms up sufficiently so they can fly and return without being chilled. In the latter part of the winter the bees should have a flight, providing there is a day warm enough for them to fly and return. When they are outdoors on their summer stands it is not always possible to control this. Bright sunshine will often draw them out into chilly air where they soon drop down from cold, and die. In the case of indoor bees this flight can be perfectly controlled awaiting a perfect day, warm and balmy. Some control may be had of the outdoor bees providing a board be leaned up against the front of the entrance to shut out the bright rays of the sun. It may be advisable to strew loose straw or leaves on the front of all the entrances to prevent flight on bright cold days. Keep the straw over the entrances during a good part of the winter, but every now and then rake out the dead bees. When you have a nice warm balmy day pull the straw away, and replace it after the bees have had their flight.

It is a little unusual to have drones in the hive in December. It is possible that your hive is queenless, had a virgin, or that the queen, if laying, was a drone-layer. The colony in question had better receive your special investigation on the first warm day.

If queenless, or if there is an unusual number of drones, I would advise you to put in a good queen. The thicker the covering over the frames, the better.—ED.]

WINTERING A FEW COLONIES IN A VEGETABLE-CELLAR; IS IT TO BE ADVISED?

I have ten colonies of bees in Danzenbaker hives. I have always wintered outdoors, and should this season, but have had four colonies stolen this fall. Now, I have a good cellar, dry and dark, which I can ventilate by a window. I am keeping it cool. I have some apples in it but no vegetables. Would you advise putting the bees in there or leaving them out? I am afraid more may be stolen.
FRANK P. STOWE.

Seymour, Conn., Dec. 3.

[I see no reason why you could not put those bees in a vegetable-cellar providing you can keep the temperature down low enough. If it goes much above 55 or 60 a part of the winter, and the weather is comparatively mild outdoors, you had better take your chances on having the bees outdoors subject to the possible depredations of thieves. It is usually not advisable to put bees in the same cellar with vegetables; but where the temperature can be kept about 45 throughout the winter, you can put in as many as ten colonies and possibly some more. But a better way would be to partition off the cellar, putting the bees in one compartment and the vegetables in another, otherwise the dead bees will be apt to get all over every thing. Of course, colonies in Danzenbaker hives should have the wide entrance while in the cellar, while outdoors they should have the narrow one; and in your climate they ought to be protected with a winter-case. Taking it all in all I would advise outdoor wintering in your locality with a winter case, putting the bees near a dwelling-house, where they can be under the supervision, more or less, of the family. In cold weather the bees can be moved to any place you may desire, provided they can not fly again inside of two or three weeks. In the absence of a winter case, put a dry-goods box over each hive to shut out the light, and to afford protection against prevailing winds. On a warm day in spring, or even in late winter, raise the boxes up and let the bees have a flight and then put the boxes back again. Don't let the bees have flights on sunshiny days when the air is cold enough to chill them; for bees do not seem to know sometimes when it is good for them to stay in the house.—ED.]

MID-WINTER FLIGHTS OF CELLARED BEES;
ARE THEY BENEFICIAL?

We notice in last issue of GLEANINGS, in Stray Straws, a little discussion in regard to the advantages of mid-winter flights. Now, as yet we can not side for or against such flights; but there is one thing which we notice occurs every season quite regularly, and that is, there are double the bees come

out and die on the floor during the month of March that there are during all the preceding months put together. If we could have a nice warm day the latter part of February or the fore part of March we might save a large part of the bees which otherwise come out and die. However, it's an open question in our mind as to whether these same bees which we find dead on the floor would ever be carried back in the repository after being given a chance to fly. Would not a large part of those bees take wing and die outside the hive?

H. G. QUIRIN.

Bellevue, O., Dec. 26.

[What you say regarding the accumulation of dead bees in the latter part of spring being more than all the rest of the period of confinement, is exactly true. As you live in our own latitude, and your climate is practically the same as ours, may I suggest that you try this experiment? When the first warm day comes on in the latter part of February or fore part of March (the earlier the better), give a part or all of the bees a flight before setting them on their summer stands, and return them the same day toward night. If you do not find that the number of dead bees on the cellar bottom is considerably reduced thereby I shall be greatly surprised. I argue that the bees fly out of the hives in late spring mainly because they are in distress, their intestines becoming overcharged. I do not believe it is true that bees in a semi-dormant state in mid-winter wear out or become "superannuated." This old notion that they would die anyhow in the cellar, and are therefore no loss, if believed in may be expensive. It has already cost bee-keepers millions and millions of bees, and in some cases I fancy it has made all the difference between profit and loss. A strong colony in the spring is sometimes easily worth three of medium-strength ones. Indeed, the medium colonies may get no surplus, just holding their own, while the strong ones would obtain a good crop of honey; therefore I believe it pays to save this fearful cellar loss if it can be done. I am free to admit it may not be possible in every cellar. We have two such cellars at outyards in our own locality where we can not control the death losses because we can not control the temperature—that is to say, we can not prevent it from going below or down to freezing, and so we have practically abandoned both cellars. Answering your last question, I should say yes and no. But the far greater part of the bees would return to the hive *if the atmosphere is not too cold*—ED.]

HOW TO GET BEES INTO THE CELLAR WITH THE BOTTOMS OFF THE HIVES.

I wish you would tell how you get bees into the cellar with bottom-boards off. I had trouble with mine—bees all over the bottoms and all over me.

Pittsville, Wis.

A. B. WHITE.

[The day before we expect to put the bees into the cellar, when the temperature is

down to freezing or a little below, we go around with a pry, put it into the entrances, and break the propolis connections. We next loosen the bottom from the ground. The next morning, if the temperature is still down, we pick up bottom-board and all with a pair of hive-hooks, carry the hive into the cellar, and on arrival there we quietly lift it off the bottom-board, setting the hive on a pair of 2x4's. Another hive is brought in and set down in the same way, but about four inches from the one first placed. So on we continue until the entire row is completed. Another tier of hives with bottom-boards off is placed on top of the lower one, but each hive directly over the space between two hives below.

If you attempt to carry the bees in on a warm day, they will be liable to come out and bother. Wait till the temperature is low enough so the cluster draws up in one compact mass on the combs; but make sure the bottom-board fastenings are broken a few hours before the hive is carried in. In the mean time the bees will quiet down if they were disturbed. If the work is done right, there will hardly be a bee flying.

If the bees should fly out they can be stopped with a smoker, or shut in with a handful or two of snow thrown over the entrance. If the hive-bottom is left on, the snow will melt away in the cellar after the bees quiet down.

Where the entrances are wide and deep, and the colony not too strong, it is not necessary to remove the bottom-board. In fact, in later years we have had practically as good results by leaving the bottom-boards on, with the board turned in such a way that the bees have the largest opening. The old $\frac{3}{4}$ entrance is entirely too small for a strong colony, and should never be allowed in the cellar except in a case of nuclei or weak colonies. If the cellar has a tendency to be too warm, the bees had better have the bottom-board off.

Some people secure good results by using the old deep $\frac{3}{4}$ entrance; and, instead of letting the colony have their outdoor cover, they put a light thin cloth on top of the frames. Others prefer to put on a piece of old carpet, and some prefer a chaff cushion to absorb the moisture. Some of the best wintering I have ever seen in the cellar was with the old $\frac{3}{4}$ -inch entrance, with a chaff cushion on top.—ED.]

YOUNG BEES; HOW SOON THEY CAN ASSUME THE ACTIVE DUTIES OF THE HIVE; A REPLY TO DR. E. F. PHILLIPS.

Permit me to say a word contrary to the views of Mr. E. F. Phillips in regard to young bees, and why they do not go to the fields at an early age. When bees emerge from the cell, every bee-man knows they are weak and undeveloped, and that each bee must "grow" exactly as a mother's child does. Bees, naturally, are not taught, but learn their ways of life by imitating those before them. If Mr. Phillips will go to the trouble of introducing an Italian

queen into a hive of black stock containing two combs of brood with an empty comb between them, and a comb of honey on both sides of the brood, waiting for developments, I think he will find that bees are not blind nor weak either, even after the lapse of four days. On the second day after one of those Italian bees crawls out of a cell a person can get that bee to take sips of fine honey from the point of a toothpick, and on the third day that bee will hunt over the combs for the honey, where, before, you had to put the drop in front of it.

I know all this takes time and great patience; still, it is thus to get natural facts. I can truly say I have sat by a hive fully six hours in a day. On the fourth day it is easy to get the bee to come at the entrance for the bit of sweet; and when this is accomplished you can close the hive, get the colony robbing in earnest from a feeder, shut off the supply when things are booming, and in an hour or two you will see Italians coming in from the field with small loads of nectar, having learned the source by information from the old black fellows—yes, they learned the directions by sight, and found the treasure by smell. The conditions were warm weather, a good honey-flow, and a colony of ambitious young bees—this and nothing more. On the fourth day one might get only the youngsters coming outside the entrance; but on the fifth day there should be no trouble whatever. Are bees kept from seeing things perfectly when very young? I don't think so, because, if you will but notice where there are plenty of bees six to eight days old in front of a hive, those bees will keep "rolling their eyes" at you all the while you are near.

If this appears in GLEANINGS I will beg Mr. Phillips' pardon, and also that of Arthur C. Miller, as their theories are different in substance from the facts I have found by observation.

To-day I have two colonies—a black one and one I introduced a Holy Land queen to, after which I observed and came to believe the things related above. The fact that some of those Holy Land bees went to the field after being so encouraged by me is absolutely true. I will add that it was during August, and with a large buckwheat-field about 50 rods distant. The queen was introduced July 25th, 1904.

Danville, N. J.

RALPH P. FISHER.

[Your observations are interesting and valuable. You have since seen that they are in line with a recent statement by Dr. C. C. Miller. It should be said that Dr. Phillips did not say that young bees could not see because of the tangle of hairs over the eyes; but he did suggest that *possibly* these hairs might obstruct or obscure vision at an early age for a purpose.—ED.]

HOW MEDICINES FAILED AND BEE-STINGS CURED.

Since you ask for the testimony of rheumatic patients who have tried the bee-sting

cure I will give my experience. In the winter of 18-7 I commenced to have a sleepy sensation in my right hand, which would develop into a numbness of the arm, and finally to extreme pain. The pain became acute, and lasted 6 months, at the end of which time I had partially effected a cure, but had nearly destroyed my stomach by the medicine taken. I found myself in a position in which I had to have either rheumatism or indigestion, one or the other, all the time. After three years of this experience I bought a colony of bees and placed it on the roof of my house and commenced to take from three to ten stings per day, and have taken the sting cure in warm weather since, but have taken no medicine since, and have no rheumatism. The effect of the stings in my case was marvelous and rapid.

BEEES ON A FLAT ROOF IN THE CITY.

Before closing I want to say for the benefit of the order that a flat roof for people in the city is a fine place to keep bees. I shelter my bees by an outside case over each hive, and anchor the same to the roof, and they interfere with no one. I feel a little proud of my success, having made over forty per cent out of my little apiary last season. I sold one colony of golden Italians for \$15.00 to a neighbor who was bound to have them because they were so gentle.

C. E. PHELPS.

Washington, D. C., Dec. 24.

ITALIANS NOT IMMUNE TO PICKLED BROOD.

I see that GLEANINGS wants reports about pickled brood. Italians are not exempt. I bought seven queens the past summer of best strains of Italians, and lost all from pickled brood. A queen from Root's three years ago, and her progeny, are seemingly all right, also a queen from the same place. If the bees were shaken on foundation in disinfected hives, and fed on medicated syrup, would that cure them?

Clinton, Ill., Dec. 12. HENRY WILSON.

[Very little is known about pickled brood thus far, and I can not tell you whether feeding medicated syrup of any kind after having been shaken on frames of foundation will effect a cure.—ED.]

SHALL WE FEED BEFORE FRUIT-BLOOM?

In feeding to stimulate brood-rearing in the spring how long before fruit-bloom would you begin? What is the best and easiest way to feed, say $\frac{1}{4}$ lb. syrup to bees in chaff hives?

A. J. MORSE.

Plum, Pa., Dec. 27.

[No, I would not advise giving liquid food before fruit-bloom. Stimulative feeding, in any case, should not be practiced until it is comparatively warm, or when the bees are flying every day. If the bees require feeding before fruit-bloom to keep them from starving, give a comb of stores from some other colony, or a cake of hard candy.—ED.]



CLIMBING THE ROYAL PALMS IN CUBA.

The cuts accompanying this article were made two years ago when I passed the winter in Cuba. I examined the apparatus at the time, and thought when I got home I would instruct the grandchildren how to climb telegraph-poles with a similar arrangement; but I found myself unable to do it. Perhaps some of the Cuban bee-keepers, when they see this, will be kind enough to send us instructions. My impression is, however, there is just one single piece of rope with a stirrup on one end, very much like the stirrups used in ordinary saddles. With that single piece of rope the man would go up a royal palm with very good speed. There are two loops around the tree, as you will notice, with quite a piece of rope dangling several feet below the man. He puts one foot in the stirrup, as you will notice, and the other *leg* is placed across the loop of the rope. While pulling up the stirrup he holds himself by this loop, which comes just under his thigh. After the stirrup is drawn up he rests on the foot in the stirrup, raising the knee, which permits him to lift up the loop up near his head; then resting on this loop he pulls up the stirrup again. I saw him do this, and took his rope in my hands, and looked it all over and thought it very simple; but when I got home I had forgotten how to do the trick. It is



A CLOSER VIEW SO THE ARTIST COULD SEE HOW THE APPARATUS IS MANAGED.



CLIMBING THE ROYAL PALMS IN CUBA.

not hard work at all, for the experts such as you see on the tree will climb the tallest trees, cut off enough of the bunches of fruit or berries to make a very fair wheelbarrow-load, and let them down on the ground at only five cents a tree, and they make very good wages at that. Unless one is careful, and understands the trade, there is some danger that he may tip over, head down and feet up. I think he steadies himself by his toes when his hands are not clasped around the tree.

You will notice something dangling by the side of both men. It looks like the scabbard of a sword. Well, that is a Spanish machete—a tool that always accompanies every workman. But you need not be alarmed. It is not often used as a weapon of warfare or defense. The Cuban uses his machete much as we Americans use a pocket-knife or a hatchet. As a tool it is used to a very great extent for almost every thing, whether he cuts brush, weeds, or digs in the ground, and ever so many other things that you would have to stay in Cuba a while to understand.

One of our American bee-keepers borrowed the rope and undertook to climb. He not only made hard work of it, but our Cuban friend said it was dangerous business

for, one who had not carefully learned the trick by practicing close to the ground.

At first I thought this method of climbing would be a great improvement over our climbers for climbing bee-trees, telephone-poles, etc.; but the main trouble is, if anybody here in America had the apparatus he would not know how to use it; and it might be too slow for the men who climb telephone and telegraph poles, even though it does seem to be pretty quick work with the Cubans.

THE WRIGHT BROTHERS' FLYING-MACHINE.

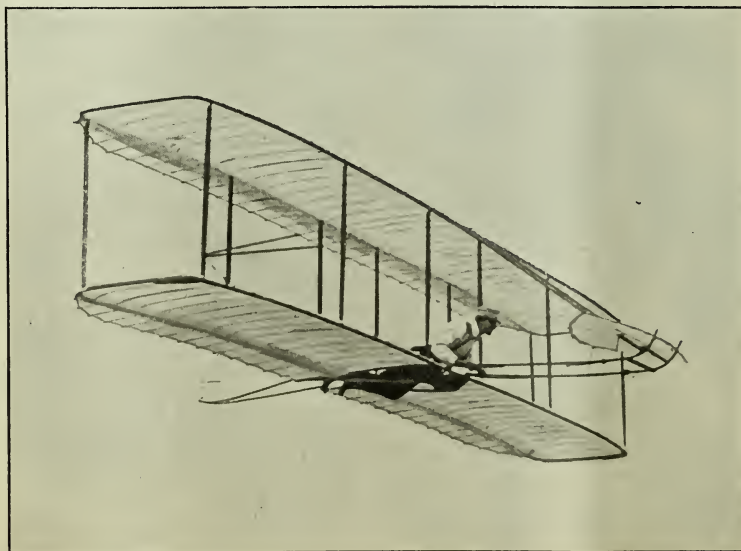
I shall have to apologize a little, friends, for giving a picture of the gliding-machine instead of a flying-machine; and I shall have to apologize a little more because the rudder in the rear that guides it from right to left is not shown in the cut; neither are the diagonal wire braces shown. You will recollect the machine is made of white canvas. The wires are also white; and with the clear sky for a background it was very difficult to get a clearly defined picture. To make it a little plainer the outlines have been marked with ink, as you will observe.

The back side of the planes shows the outline as it really appears. The cotton is stretched over a light framework of light sticks, giving it somewhat the appearance of a bird's wing; for both planes, upper and lower, are concave to some extent. The front rudder, that changes the course of the machine up or down, is a small independent plane that can be raised or lowered out of its level by the operator. The back rudder that does not show in the picture consists of two vertical planes that can be revolved on

a pivot so as to turn the machine either to the right or left. The operator, Mr. Wilbur Wright, if I am correct, is shown very plainly.

It has often been remarked that one of the most beautiful sights in the world is a ship under full sail, especially a new sailing vessel with clean white canvas. There is something especially exhilarating about the way in which the canvas catches the wind and sends the ship scudding through the waves. But to me the sight of a machine like the one I have pictured, with its white canvas planes and rudders subject to human control, is one of the grandest and most inspiring sights I have ever seen on earth; and when you see one of these graceful crafts sailing over your head, and possibly over your home, as I expect you will in the near future, see if you don't agree with me that the flying machine is one of God's most gracious and precious gifts.

I mention at the outset that the picture represents the gliding-machine. Well, the flying-machine is the same thing with the aluminum engine which stands right close to the operator and the pair of propellers, one each side of the back rudder. When in flight the propellers are invisible. Their action is very much like the motion of a bee's wing—perhaps not quite as rapid. But the picture as we give it gives you a very fair idea of the new vehicle that requires no macadam road, no iron rails, and no expensive bridges. Its highway is God's free air; and as it has only the vaulted heavens above to fence off our domain, there surely should not be any dispute about the "right of way;" neither should there be any difficulty in the way of collisions or get-



THE NEW-FASHIONED SLED FOR SLIDING DOWN HILL ON THE AIR.

ting in each other's way. The automobile is largely restricted in making speed by other vehicles, especially where the driver does not wish to annoy or inconvenience any of his fellow-men. If anybody gets in our way with the air-ship we not only have ample space to go around him to the right or to the left, but we can "duck under" or scoot over his head if it seems advisable. There does not seem to be much danger in the way of loss of life unless something happens to the front rudder; and that is one feature that should be made safe beyond the possibility of an accident. While up in the air there is but very little to injure or to put any great strain on any part of the machinery. If you run into a tree or a house, of course there would be a smash-up. No drinking man should ever be allowed to undertake to run a flying-machine.



Gather up the fragments that remain, that nothing be lost.—JOHN 6:12.

There are in this world of ours something like 1500 million people. In this country of ours there are about 80 millions. In the United States there are comparatively few who suffer from a lack of food. It is altogether likely there are more who are suffering because they eat *too much* than the other way. I do not know how many there are in this whole wide world who do not have enough so that their bodies are comfortably nourished; but there are, without doubt, countless thousands and may be millions who are literally suffering from a lack of suitable food. There are, no doubt, millions of people whom we know so little about, one can hardly tell how many are needy; but we are told on good authority that people are starving all the while in various parts of the world, not only by hundreds but by thousands. Then there are still greater numbers, not only of men, but of women and children also, who toil all their waking hours—perhaps many hours which they really need for sleep—in order to get *just enough* of the cheapest and plainest sort of food to live. Our missionaries tell us of this kind of suffering; but the missionaries are so few compared with the great numbers of people where there are no missionaries, or only one missionary for several thousand, that we know comparatively little about the suffering and distress that are going on in different parts of the world. If these people could have railroads or other means of transportation, as we have here in America, to move the surplus in regions where there is famine, this matter would be measurably remedied; and one reason why we should each and all of us, whether we are professing Christians or not, stir ourselves to spread the gospel according to our

Savior's last words—"Go ye into all the world, and preach the gospel to every creature," is that this seems to be the readiest means for relieving and supplying the starving millions.

I have often spoken in these Home papers, by way of remonstrance, of the amount we as Americans waste every day. It is not only millionaires and the people who can afford to pay several dollars a day for their board (or at least they *think* they can), but it is those in the humbler walks of life who waste so much of what the father of the family earns that they never get on in the world. They pay rent *all their lives* instead of owning a home of their own, just because they fail to use economy in choosing and preparing their daily food. Our good pastor startled me last Sunday by calling our attention to the fact that the dear Savior bade the people gather up the fragments that remained, that nothing be lost, after that wonderful miraculous feast. If there ever was anybody in this whole universe who did not need to be saving, it was He whom even the winds and waves obeyed. He could, by his simple word, or prayer to the Father, provide in an instant loaves and fishes not only for thousands, but probably just as easily for the whole wide world. Do some of you ask, "Why didn't he do it"? Because, my good friend, experience and common sense teach us that it would be no kindness to provide food that they might spend their time in idleness. We hardly need discuss this phase. Well, if our beloved Lord and Master commanded them on that memorable occasion to gather up the fragments that nothing be lost, does it not follow that it is our duty, every single one of us, from the President in the White House down to the occupants of—suppose we say "the cabin in the woods"—in a like manner to gather up the fragments after each meal? Of course, we do not know exactly what the Master intended should be done with those fragments; but we may be pretty sure it was to feed hungry people at some future time, and *not* give it to the pigs and chickens. Of course, it would be better to turn it over to the pigs and chickens (and dogs) than to have good nourishing food wasted; but I am sure that, in this land of ours, too much is turned over to domestic animals. I do not know that I ever heard of *chickens* being made sick; but I can recall an instance where pigs were made sick by the slops brought from a great fashionable hotel. If the number of pigs had been great enough to "handle" all the garbage before it had had time to ferment and smell bad, perhaps the digestion of the swine would have been equal to the task. I got a glimpse of it in this way. I paid a short visit to a bee-keeper once who engaged to take out of the way all the refuse and garbage from a big hotel where they had a large patronage of wealthy summer resorters. You probably know how they manage where people pay a dollar for a meal, or even more. A great lot of nicely cooked food is brought to every person, in a great

number of dishes. He takes what he likes, and leaves the rest. Sometimes only a few of the *entrees* are even tasted at all; but the colored waiter piles all of these dishes, food and all, into a big pan, and hustles them out of the way.*

At some hotels I believe they have lunch-rooms where they dispose of a great deal of these untouched viands at a lower price; but of late, so far as my observation goes, this thing seems to have been abandoned mostly. Perhaps the hotel must preserve a certain line of dignity. Our choice fruits, vegetables, and meats cost a lot of money. Then the cooking and serving cost a lot more money; but after it is all done and on the table, the stylish man or woman (I have sometimes thought the women are more wasteful because they call for so much and eat so little) wastes enough at each meal to feed a small family of children. Yes, even in our own country there are thousands of hard-working families that would be made happy by a small portion of what each guest wastes at every meal. This thing really pains me. Even if it is true that I can afford to pay a dollar for each meal three times a day—that is, if I can afford it as well as some other people who *think* they can—my conscience would hurt me in doing it when so many others are suffering for food.

Carnegie has said, we are told, that, in his opinion, it is a disgrace for a man to die rich. I hope he thinks so still, and will always stick to it. I have been hoping, and *praying*, too, that he might give some of his burdensome millions that they might feed the hungry and starving in different parts of the world. Somehow or other the millionaires think more of colleges and libraries than they do of relieving people from the pangs of starvation.

I presume many people laugh because Mrs. Root and I have always been in the habit of saving the "fragments." We were brought up that way, and I suppose we shall always follow our peculiar notions, some may call it, in that respect. When we are alone in that cabin in the woods, we manage our provisions in such a way that there is never any thing left for the pigs, and rarely enough for a chicken; and yet we are not at all confined to the cheaper foods. When we go to Traverse City we put in a fair supply of the best of every thing that is to be found in the market—that is, we have whatever we care for, no matter if I might, under the circumstances, call it expensive. Like my good friend Terry, I am fond of cheese, and I like the high-priced cheeses that come in

little packages. Then there are other things that would be expensive if we ate a little and threw away the rest; but we manage to have a good variety at each meal, and also have each meal different from the one preceding. At the same time, our living expenses are *ridiculously* small, you might almost say, because we manage so that nothing is wasted. Whatever is left over, Mrs. Root manages to fix up in such nice shape for the next meal that it is never left over a second time.

Sometimes in the summer the bread dries out, or pieces are left. These she dries still more in the oven. If dried until it is brown, it is a little like the German zwieback. On one occasion some pieces of dried bread were left in the oven when we left the cabin. A month or two later I got around to our place all alone and quite hungry. With some milk from a neighbor's this dried bread made an excellent and healthful repast. By the way, when I am out on my automobile rides I carry a paper bag of this dried bread. I think that made and sold by the Battle Creek Sanitarium is the best I have ever found. Even in traveling I like my meals at regular hours; and when I am out with an auto it often happens (especially when I get up at daylight and start out) there is no hotel near when mealtime comes. Whenever this happens I get out my lunch of dried bread and cheese, and I not only enjoy it, but my health is ever so much better in traveling than when I have a big breakfast or dinner at a hotel. It saves time; and what do you suppose the expense of a good meal is, made in the way I have mentioned? We get the zwieback in bulk for 10 cts. per lb., at our groceries. I think about a cent's worth of cheese and five cents' worth of dried bread, with water from some wayside spring, is all I need for these wayside lunches. A few times my auto has got out of repair when out in the country, and I never like to work hard, say down under the machine, when I am hungry; so you see how nicely my lunch comes in. Another good thing about this inexpensive lunch is, it never spoils. Sometimes I have no occasion to use my lunch at all; but it is just as good when I get home after a trip of two weeks as it was the day I started.

If you are giving to the cause of missions to feed the starving and dying people in those parts of the world where there is famine, you have so much more money to spare for this work where you live in the way I have mapped out; so it is not at all unreasonable to say, we take the surplus food that is thrown away at hotels and send to the starving people away across the seas. Instead of sending the food which you do not want or need, you send the *money* it would cost. But this is not all of it. There are two sides to my talk to-day, and I am just getting over to the other part of it. Let me digress a little as I start out on my other talk.

When I was out on that automobile trip of two weeks across our State diagonally, which I told you about, I discovered I could

*The above is not all. Instead of "gathering up the fragments that nothing be lost," the average girl dumps the dishes, with more or less food in them, into the dishwasher. Then the dishwasher is dumped into the slop-drain, soon choking it up in spite of the skill of our best sanitary plumbers. Of course, the slop-drain usually has a strainer of wire cloth or perforated metal; but as the "stuff" does not get through fast enough the "help" yanks out the strainer. This diluted rich food is just the thing to ferment and produce sewer gas, resulting in typhoid fever, diphtheria, and other diseases. Sickness and death might have been prevented by reasonable economy in this direction.

get the greatest amount of speed from a very small amount of gasoline by adjusting the flow of it just right. Every one who runs an automobile has discovered that too much gasoline clogs the motor. It puffs out black smoke, fills the cylinder and carburetor with soot, and soots and clogs the spark-plug. With *just enough* gasoline, and no more, there is no black smoke at all—no clogging of the machinery with soot; but when you come to climb a hill or take an extra passenger you have got to increase the flow of fuel a little. With practice, however, you can give this gasoline-valve a touch whenever you come to an up grade, and keep just enough running, and no more, to do the work. Well, on long stretches of level road through some of the western counties I discovered I could turn on *not quite enough* to do the work—at least, it seemed when I set the valve that there was hardly sufficient to keep the motor up to full power. But I found by running it this way a little while the machine seemed to get used to the scant supply—I do not know any better way to express it; and the speed would keep gradually increasing without any additional fuel, and in this way I made the machine give the very best results. In going down hill, where the incline was sufficient I could shut off the fuel entirely. Well, when I managed so as to make the machine do its work with the least amount of fuel I found it was an easy matter to keep the engine in perfect order; and I was finally obliged to decide, like many other users of gasoline-engines, that the greater part of the trouble with these machines comes from using more fuel than is really necessary.

When making these experiments it occurred to me that it was a good illustration of this matter of sickness and health in the human family. T. B. Terry, in his health notes, in the *Practical Farmer*, is continually repeating over and over that not only nearly all our sickness but the greater part of our chronic diseases, are the result of overeating. If people would eat only just enough to keep the machinery of the human form in good trim, these new-fangled maladies that are developing and killing us off would mostly disappear. I believe Terry is right. We pay out great sums of money for our daily food. "Daily bread," as we have it in the Lord's prayer, is not the right name for it. We take into our stomachs a great lot that only does us harm instead of good, and then throw away a lot more that might make other people well and happy if they only had it. Children are brought up and trained in this way, and they seem to think there is no other way. I was one of seven children. Our parents were comparatively poor. I come pretty near saying I thanked God they *were* poor; and I do not know but it is right to say it. One of the earliest lessons this father of seven taught us was, to take no more on our plates than we needed, and to leave our plates clean when we left the table. I think one of my

older sisters also taught us to put our knife, fork, and spoon in the most convenient place for those who cleared off the table to pick up. Father said we could have all the food we wanted or needed; but in order to wind up with clean plates all around we had better take a little to begin with, and then ask to be served a second time if need be. I guess it was a little bit hard for each one of the Root youngsters to manage to leave his plate clean until he had had some practice and experience; but when the older ones set the example the youngest very soon began to feel a little proud in leaving his plate clean also. In helping ourselves to the bread in a similar way, we managed not to have broken bread lying around the plate. I think my good mother once or twice saved up the broken pieces for certain ones until the next meal. You may think this was a little too close, some of you; but it taught us a wholesome lesson, and started us in proper habits; and even now when I see children leaving broken-up bread and other things scattered about their plates it makes me feel uneasy. Of course, it is not my province to interfere or even advise the parents in such things; but I can tell you about it here on the pages of this journal, and I think no one will feel hurt. I am exceedingly glad that it was my good fortune to have a father and mother who taught me in early childhood to "gather up the fragments that nothing be lost."

Before I was ten years old I was embarked in the poultry business, and it was quite a task for me to scrape up the pennies to buy feed for my biddies. I commenced by saving every thing that chickens would eat; and this taught me *more* useful lessons in gathering up the fragments.

Remonstrance has been made to Mrs. Root and me many times by the younger ones—of course, in a pleasant way—because we spend more time in picking up stuff than it is really worth; and sometimes we are obliged to admit this is true, especially if we were working for wages as most people are. But she says, and I agree with her, that she can not bear to live where things are scattered all about without being picked up. The doorway, and the rooms in the house, can not be neat and tidy unless things are picked up and put away. Then if these things we gather up and throw away are worth something at some future time we have a double reward for gathering up the fragments. Then, again, do you know how nice it is to have people come to visit you who leave things when they go away just as they found them? Perhaps it is not all appreciated; but when we go to a restaurant or a hotel, or to a summer resort, or to visit relatives, we try to leave every thing where we have been in just as good shape as it was found. I remember once, years ago, a relative with two or three small children paid us a visit. I believe they stayed only one night; but during that brief time those youngsters climbed from cellar to garret, overturned pretty nearly every thing that

could be overturned, broke more or less of the furniture, and left a wreck we did not forget for almost a year. Do you think those children were "born that way"? That may have had something to do with it; but I think painstaking bringing-up might have made good careful men and women of them, no matter *how* they were "born." If I went through life scattering things right and left, buying valuable property and then throwing it away, and buying and wasting food, clothing, and every thing else in the same way that some people do, I am not sure but I should get tired of this disorderly world and want to die so as to get out of it. I do not think I should commit suicide, but I might wish death would come of itself. I could not think of suicide in my right senses, for that would be flinging back in the face of my heavenly Father the greatest and most precious gift he has ever given to you or me or anybody else—a human life to live.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A good 2d-hand Barnes foot-power saw.
JUDSON HEARD, 350 Poplar St., Macon, Ga.

WANTED.—To exchange incubator and homer pigeons for honey. G. ROUTZAHN, Biglerville, Pa.

WANTED.—Combination foot-power circular saw.
S. V. REEVES, Haddonfield, N. J.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HEKSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange double-barrel shot-gun for one pair of minks. Any person in the trap business will please correspond with me.
Address 216 Court St., Reading, Pa.

WANTED.—To exchange modern firearms, for incubators or bone-mills.
WM. S. AMMON, 216 Court St., Reading, Pa.

WANTED.—Incubator's bone-mill, queens, or nuclei, in exchange for Kold Klimate hives and fixtures, send for circular,
D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange bees, queens, or extracted honey for a 2½ or 3 h.-p. gasoline-engine and buzz-saw.
THE HYDE BEE CO., Floresville, Texas.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To exchange about 500 ½-story Heddon hives, with worker-comb in 300; some empty frames, covers, and bottom-boards; for bees or cash.
ARCHIE COGGSHALL, West Groton, N. Y.

WANTED.—To exchange queens for any thing I can use. Write.
S. F. TREGO, Swedona, Ill.

WANTED.—To exchange new or second-hand bee-supplies, and other things, for comb honey or offers.
J. E. THOMPSON, Carpentersville, Ill.

WANTED.—To exchange one 260 egg Ecqelsior incubator, and one set Encyclopedia (15 volumes), write for description, for honey, wax, or high-grade typewrite.
F. H. McFARLAND, Hyde Park, Vt.

WANTED.—To exchange a professional photographer's outfit, including portable gallery, for any thing I can use. Correspondence solicited.
P. D. MILLER, Grapeville, Westm'd Co., Pa.

WANTED.—To exchange 120-egg Prairie State incubator; good as new, and satisfactory in every way as a hatcher, for Root's eight or ten frame Dovetailed hives. Will sell for \$13.00. At the Erie, Pa., Poultry Exhibition we won more prizes on our White Wyandottes (including every first) than any other exhibitor in any class. Stock and eggs reasonable.
HERMAN CROWTHER, North Kingsville, Ohio.

Help Wanted.

WANTED.—Reliable man and wife to work farm in Rhode Island; ¾ mile to church and railroad station; cows, hens, and bees. Correspond with
E. W. ROSS, City Hall, Providence, R. I.

WANTED.—A young man to take charge of 240 stands of bees in Wewahitchka, Calhoun Co., West Florida. Must understand taking comb honey. Want best of references—prefer recommendations from A. I. Root Co.
S. S. ALDERMAN, Wewahitchka, West Florida.

WANTED.—Young man who is thoroughly capable of taking charge of apiary, and understands introducing and breeding of queens. Can furnish employment the year round to a good man.
W. P. SMITH, Penn, Lowndes Co., Miss.

WANTED.—Help with our bees; steady position for the right man with experience. Give particulars first letter.
THOS. C. STANLEY & SON, Manzanola, Col.

WANTED.—Three salesmen for our new County, Township, and Railroad Surveys of the various States; counties and towns indexed; just off the press. Salesmen now at work are sending in heavy reports. A splendid opportunity for energetic men. Address
RAND, McNALLY & Co., Chicago, Ill.

Situations Wanted.

WANTED.—Position by a strong young man to assist in apiaries in the States or Cuba. No bad habits.
WELLESLEY WALSH, Port Marie, Jamaica, W. I.

WANTED.—Situation in Cuba or Florida for the winter. Seven years' experience with bees.
AMOS H. KANAGY, Milroy, Pa.

WANTED.—Situation. Open for engagement as manager or foreman; would also work for monthly salary; expert on comb honey; 18 years' experience. Would also go into partnership or buy a large apiary for spot cash, in West Indies, Mexico, Central or South America.
C. GROVE, 2027 E. Venango St., Philadelphia, Pa.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. \$1.00 per month; \$10.00 per year. Daily, except Monday.